

LOWER MAINLAND EDITION

MARCH 1991

VOL. 4 NO. 3

# The COMPUTER PAPER™

WESTERN CANADA'S COMPUTER INFORMATION SOURCE

NEWS • FEATURES • REVIEWS • EVENTS

IBM & COMPATIBLES • UNIX • APPLE • COMMODORE • ATARI

How to Buy a  
**LASER  
PRINTER**

**SERVICE  
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Starting Out in  
**DESKTOP  
PUBLISHING**



4th  
Annual  
Survey of  
**PAYROLL  
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Around the end of March we'll be moving to a bigger store (3003 Kingsway [at Rupert]), so we want to clear out as much of our stock as possible before then.

- Take an extra 15% OFF all Games (which are already well below List Price)
- 10% OFF sticker price on Books
- We specialise in books and software. Thousands of titles—all on sale!



## Quality Computers

### COMTEX 386-25

- 8 MHz / 250MHz
- 0 wait states, AMI BIOS
- 1 Megabyte RAM (exp. to 8Mb on Motherboard)
- 300 Watt Power Supply
- 2 Serial, 1 Parallel & 1 Games Ports
- 1.2 Mb Floppy Drive.
- IDE Hard Adapter.
- 100-Key Keyboard
- Desktop: \$1549
- Tower: \$1649
- Mini Tower: \$1599
- Small Foot Print: \$1599

To complete your System add a Hard Drive, Graphics Card, Monitor, and MS-DOS. Perhaps you also need a Tape Backup, 3.5" Floppy Drive, Mouse, Memory, Math Co-Processor, Roland, Audio or Sound Blaster Music Card, Printer or Modem. We test and email all of these and any software that you choose to buy from our giant selection.

### OTHER MODELS

- 25 Mhz 445 (1988) of Centre Memory, 4 Mb RAM, AMI BIOS: \$3199
- 20 Mhz 386 Caching Tower (8Mb RAM, AMI BIOS): \$1999
- 20 Mhz 386 / SX Small Footprint (2Mb RAM, AMI BIOS, 2 Serial, 1 Parallel and 1 Games Port, 300 Watt Power Supply): \$1199
- 16 Mhz 386 / SX (Same as 20 Mhz SX except with 1Mb RAM): \$999
- 12 Mhz 386-12: \$999
- CLEARANCE: 16 Mhz XT (Memory/CGA Card): \$399
- Call for list prices on SANYO, BONDWELL & ALR Notebooks.
- Call about the ALR line of EISA and MicroChannel computers.
- All Comtex Computers include Two Year Parts and Labour Manufacturer's Warranty!

### IMMEDI / DESKTOP MUSIC!!!

- Software
- The Final Cut: \$134.95
- Sound in a Box: \$99.95
- The Music Studio: \$129.95
- Ballade: \$299.95
- Celestial: \$199.00
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- Roland MT-32: \$699.95
- Roll CM-64 LAPCM: \$1499.95
- LAPCM-1 Sound Card: \$399.95
- MIDI-1 MIDI Card: \$149.95
- MIDI-MIDI card: \$479.95
- MIDI-MIDI IBM Proc.: \$249.95
- SoundBlaster: \$199.95
- Chips Chips: \$199.95

### WAYS TO ATTRACT FIRST-TIME BUYERS

- "Absolute Lowest Prices On The Planet"
- Big, Loud, Colorful, Polyspent Ads
- Advertise a Lot of Stuff You Can Get But Don't Have
- Lots of Computers Salepeople

### THE WAY TO GET PEOPLE TO COME BACK

- Service

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## SHARP PC-6220



### Sharp PC-6220 Notebook Computer

80386 CPU, 20MB Hard Drive, VGA Display

PC Magazine Editor's Choice

PC World Best Buy

Dimensions: 8.5" x 11" x 1.5"

Weight: 4.4 lbs.

## OKIDATA OKILASER



### OKILASER 400 LED Printer

800 dpi, LED Printhead

4 Page Per Minute

3 Year Printhead Warranty

200 Page Paper Tray

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One Day

\$1799.00

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# Reliable 486 33MHz is here!

## ISA & EISA

Being used by BC Hydro,  
Westcoast Energy, etc.

### BYTEWELL 286 AT

- 80286 8/25MHz 0 N/S - 1MB, max. 4MB on board -  
1.2MB floppy drive - 40MB 28pin hard disk - 101 key  
click keyboard - 12" monochrome monitor

System Price: **\$899**

800x600 .31 VGA 14" Colour add \$320

### BYTEWELL 386SX

- 80386SX 8/16MHz 0 N/S - 1MB, max. 6MB on board -  
1.2MB floppy drive - 40 MB 28pin hard disk - 101 key  
click keyboard - 12" monochrome monitor

System Price: **\$1299**

800x600 .31 VGA 14" Colour add \$320

### BYTEWELL 386/25

- 80386 8/25MHz 0 N/S - 1MB, max. 6MB on board -  
1.2MB floppy drive - 40MB 28pin hard disk - 101 key  
click keyboard - 12" monochrome monitor

System Price: **\$1668**

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### BYTEWELL 486/25

- 80486 8/25MHz 0 N/S - 4MB, max. 16MB on board -  
1.2MB floppy drive - 40MB 28pin hard disk - 101 key  
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• Integrated CMOS power & timing  
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FREE WORD PROCESSING, DATA  
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### MULTITERM MT-286 AT

- 80286 8/16MHz, 0 N/S
- 1MB RAM, MAX. 4MB on Board
- 1.2 MB Floppy Drive
- 40MB 28 pin Voice Call Hard Disk
- 101 Click Keyboard
- 14" Monochrome Monitor
- MS-DOS 4.01 & GW-Basic

System Price: **\$1199**

1024 x 768 .25 VGA Colour add \$480

### MULTITERM MT-386SX

- 80386SX 8/16MHz, 0 N/S
- 1MB RAM, MAX. 6MB on Board
- 1.2 MB Floppy Drive
- 40MB 28 pin Voice Call Hard Disk
- 101 Click Keyboard
- 14" Monochrome Monitor
- MS-DOS 4.01 & GW-Basic

System Price: **\$1599**

1024 x 768 .25 VGA Colour add \$480

### MULTITERM MT-386/25

- 80386 8/25MHz, 0 N/S
- 5MB RAM, MAX. 6MB on Board
- 1.2 MB Floppy Drive
- 40MB 28 pin Voice Call Hard Disk
- 101 Click Keyboard
- 14" Monochrome Monitor
- MS-DOS 4.01 & GW-Basic

System Price: **\$2099**

800x600 .31 VGA Colour add \$320

1024 x 768 .25 VGA Colour add \$480

### MULTITERM MT-486/25 ISA

- 80486 8/25MHz, 0 N/S
- 128K External Cache
- 4MB RAM, MAX. 16MB on Board
- 1.2 MB Floppy Drive
- 40MB 28 pin Voice Call Hard Disk
- 14" Monochrome Monitor
- MS-DOS 4.01 & GW-Basic

System Price: **\$3199**

800x600 .31 VGA Colour add \$320

1024 x 768 .25 VGA Colour add \$480

5 YEAR PARTS, 1 YEAR LABOUR OR 5 YEARS WHATEVER



3Com

UNISYS



## NOVELL DISKLESS 3 USER SYSTEM \$5254



286 Novell



286 12MHz



286 12MHz

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# From the Editor



## Desktop Publishing

This month we tackle the burgeoning field of desktop publishing with another of our amateur editors, Gerson Escamot, on getting started and keeping a laser printer. Nelson Kent is back with an article on how to get your computer screen to look more like what you print out. And the "Tech" man tells us how to get the most out of an HP laser laser cartridge by recycling it.

## Canadian Payroll

Thanks go out again to Joan Hortal for her patience and diligence in completing our fourth annual payroll survey. In addition to year-end for her clients and GST transactions, Joan had to deal with a flurry of late-breaking payroll updates to bring us this year's assessment of the state-of-the-art in Canadian payroll. We also had a

look at payroll services as an alternative to the do-it-yourself route of software.

## The Mighty Pen

This month's hot technology story has to be the marketing of a new pen-based operating system created by a startup from California called GO Technology. This company, with the support of some high-collaring investors like IBM, has come out with an innovative operating system that recognizes hand-printed input. GO's plan is to sell PenPoint, the operating system, to hardware manufacturers. Look for products starting to arrive this fall. This could be the technology that finally brings down the barrier on computer use for millions of other people.

## Our Cover

As if to illustrate the point being made about the frustrations of desktop publishing, our cover this month appeared to be great. The conception was smooth, we chose the graphic style we wanted, a caption popped into my head and we were well ahead of schedule. Gerson Escamot then began creating the image on the illustration package I provided. He created the image in about a day and then the horror began. Page after page refused to print, each one creating more Postscript errors. He tried deleting objects to see what was causing the problem, but instead of getting better, the graphic crashed more errors.

At one point, he suggested having himself photographed, stamped over the terminal, drawing in all the various failed points. He is not a person who easily gives up, and despite my suggestion that he let it go and find an easier image, he persevered. Finally, after a series of conversions (including trying to patch together fifty or so screen shots in Adobe Photoshop), only to have to give up for lack of disk space, he succeeded in illustrating and exporting back to ILLUSTRATE and behold—it printed. Tell me this is not a black art.

## Real Men...

Part of the reason for getting this pretentious cover done was to restore balance to the body who complained about my July '89 cover. The book came with us perpetuating sexual stereotypes by portraying a woman crying on the cover. (I was called Backing Up is Hard To Do) We just wanted to show that, in fact, real men do cry about their computer too. (I know, I know, he's wearing a mask... but it's a mask, right?)

Enjoy the issue.

*Kiran Singh Khosla*

Kiran Singh Khosla  
Editor/Publisher

## Editorial Schedule

| Issue      | Topic   | Cops     | Games    | Family   | Statistics |
|------------|---|----------|----------|----------|------------|
| APRIL 1991 | Telecommunications, SBS List Box Boards, Cellular Phones  | March 11 | March 13 | March 29 |            |
| MAY 1991   | Novelists Computers, Personal Information Managers        | April 15 | April 17 | May 3    |            |
| JUNE 1991  | 486 Computers, CD-ROMS, Upgrading Your Computer           | May 13   | May 15   | May 31   |            |
| JULY 1991  | Custom Software Development, Databases & Multimedia, More | June 10  | June 12  | June 26  |            |

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## LETTERS

## F9 Add-In

Thank you for your reference to F9 add-in for Lotus 1-2-3 in the February edition. The review was very good, but I would like to clarify one point.

While it is true that a user must know what information they want (e.g., changing versus opening balance, transactions, etc.) the F9 add-in does not have to know the structure of the ACCPAC files. F9 retrieves the user from the file structure. It only needs to know where the files are kept and which company they want access to. F9 will retrieve the specific ACCPAC data from the file using a printed specifier which is entered in plain English or ACCPAC financial database format.

Again, thank you for the review and best wishes.

Thomas W. Rogers,  
Rogers Systems Corporation

## Compliments

I would like to compliment you on maintaining an informative and useful computer magazine. Each issue seems to get better and better.

Brental Young

## Lotus Support

Andrey, I have enjoyed the February issue. I found the operators review look helpful and timely.

However, there appears to be a slight inconsistency concerning the availability of Lotus' on-line support. I've

recently had occasion to take advantage of that service. I was told that it is available during the hours 9:00 - 5:00 EST, i.e., it shows down at 1700h PST. It is not available around the clock, apparently.

By the way, the service I got on that line was good, in spite of the fact that I called you before 1700h local time. I got no busy signals, and I was not kept waiting long for a first, friendly, lady to deal with my problem, and to get to the root of it quickly. (It seems that when you're printing lot formulas, the only way you can set a right margin is with a printer control code or fixed page setup; the margin set as Lotus 1-2-3 (Release 5.1) is ignored when printing formulas. Not good if you're using standard paper as a tabularize electronic printer, particularly in such an event as waiting to that effect in the document.)

The type in this ad placed by MindLink (see page 58) is most satisfactory — I in fact at all say what Frank Brown (MindLink's rep) would say about having the IBM color "Black Link" (I'm also a little worried about what the color is at the neighborhood cash store might think...)

Anyway, keep up the (delicious) good work. And thank for adding to the phone where The Computer Page can be picked up whenever, it's much easier to find now.

Bob Meyers  
Vancouver

See The Printer Ad page 54

Would you like to recycle your laser cartridges but had a bad experience in the past?

Does your laser cartridge leave that black or smudge along the right side of the page?

Is your laser exactly too light?



Printed With Toner  
Recycle Your Laser Cartridge

See Our Service Ad page 52

Do you wish someone would make a laser cartridge that had a bad experience in the past?

Are you looking for a company that stands behind their products 100%?

Does that you can deal with in confidence?

**We have the Answers!**

**SUPERIOR LASER SUPPLY**  
Toner Recharge Specialists

**RECHARGED TONER CARTRIDGES**

**\$59.95** The price is usually higher than the original CP

**100% SATISFACTION GUARANTEED** or you don't pay.

**SUPERCHARGED CARTRIDGES**

**\$74.95** LONGER LIFE - 40% more prints per cartridge

**REMANUFACTURED CARTRIDGE with SUPER DRUM**

Best quality graphics than 3.5 E M  
Drum rated for 40,000 pages  
Same price as 3.5 E M new cartridge

**\$119.95** Guaranteed for at least 4 months free exchanges - 40% lower than the 3.5 E M.

Many More Products and Brands Available

**942-5512**

All Prices Include FREE Delivery in Greater Vancouver



**COMPUTER EMPIRE**  
CSM MANAGEMENT & CONSULTING INC.



**SPECIAL HARDWARE TO AFFORDABLE COMPUTER**

Hardly needs any explanation. We have the best prices on all the latest hardware. We also have the best prices on all the latest software. We also have the best prices on all the latest peripherals. We also have the best prices on all the latest accessories.

## JOB OPENINGS

Systems Analysts, Programmers, and Support Personnel. We are currently looking for experienced professionals to join our team. For more information, please contact us at 942-5512.

**RECOMMEND SPECIAL**

Hard Disk \$99  
Floppy Drives \$29  
Modem \$19  
AT Motherboard \$99

**POWER OF DATA**

Power of Data is a powerful tool for data management. It allows you to store, retrieve, and analyze data in a secure and efficient manner. For more information, please contact us at 942-5512.

**DEMO CLEARANCE SALE**

All Demo Units Must Go.

**386 System 33MHz**

- 1MB RAM (Exp. to 16MB)
- 1.2MB Floppy
- 40MB Hard Disk, 20MB
- VGA 1024 x 768 16" Monitor 20MB
- 16 bit VGA 1MB
- Enhanced Keyboard

**\$1988** Mono Monitor

**\$2388** Lease to own \$128/month

**386 System 25MHz**

- 1MB RAM (Exp. to 16MB)
- 1.2MB Floppy
- 40MB Hard Disk, 20MB
- VGA 1024 x 768 16" Monitor 20MB
- 16 bit VGA 1MB
- Enhanced Keyboard

**\$1688** Mono Monitor

**\$2088** Lease to own \$112/month

**386 System 16MHz**

- 1MB RAM (Exp. to 4MB)
- 1.2MB Floppy
- 40MB Hard Disk, 20MB
- VGA 1024 x 768 16" Monitor 20MB
- 16 bit VGA card 512K
- Enhanced Keyboard

**\$1288** Mono Monitor

**\$1688** Lease to own \$98/month

**AT 286 System - 12MHz**

- 1MB RAM (Exp. to 4MB)
- 1.2MB Floppy
- 40MB Hard Disk, 20MB
- VGA 1024 x 768 16" Monitor 20MB
- 16 bit VGA card 512K
- Enhanced Keyboard

**\$888** Mono Monitor

**\$1288** Lease to own \$76/month





# New

A first look



## At Ships dBASE for Sun and VAX, Sound for FullWrite

Ashton-Tate has shipped dBASE IV for SunOS and VAX VMS, closing new portability of applications written in the PC version of the database language. The new version takes advantage of the platform, multitasking and virtual memory capabilities of the Sun and VAX VMS environments.

In other news, the company has released an upgrade to its Macintosh word processor FullWrite Professional that software is with sound synthesizer capabilities. With version 1.5a, users of Apple's IIIx, LC, or third-party sound cards can now record their voice, insert it into documents and paste it into their documents. And, like other word processing fans? The forthcoming version of AT's Macintosh spreadsheet product Full Impact is also slated to incorporate "sound effects." Contact Ashton-Tate at (404) 736-7666.

## Artists Unite

Doree Tarr of Quarklet Graphics Inc. has announced the formation of the Association for Graphics Artists and Graphic Computers (AGAGC). Creating a membership already exceeding 600, the organization will help members get preferred pricing through direct purchase of software and hardware; discussion meetings and seminars; and a newsletter. In addition, members are entitled to a discount on a software support program operated by Quarklet Graphics Inc. Membership costs \$10 (plus GST) per year for individuals, and \$100 (plus GST) per year for companies.

For more info on a registration form, contact AGAGC at (404) 686-6733 or write 44 Woodlilly Square, Vancouver, B.C. V6B 1C7.

## Colby Gives Birth to 5-pound Mac

Colby has introduced a Macintosh-compatible notebook computer based on the motherboard of the Mac Classic. Weighing in at 5 pounds, the unit

comes with 1MB RAM, 40MB hard disk, 1.44MB floppy, 640x480 pixel LCD display, a built-in silent keyboard and small trackball. An optional external keyboard and mouse can also be added. Called the Classicette, the unit is slated to hit retail

stores this April for US\$2,599. An upgrade kit for creating the Classic will also be available for US\$1,499. Contact Colby Systems Corp. (415) 361-0080.

## Nitel 525T goes Canuck

New Zealand software developer Logical Methods Ltd. is opening an office in Auckland, New Zealand for their accounting product PROOFNET. The modular package has software capabilities, sophisticated accounting facilities, extensive integration between modules, detailed sales and purchase

analysis, password protection, online help, data file recovery from power and hardware failures, and more.

Because New Zealand has the dollar as a base of being the majority of its goods and services net, PROOFNET has GST support built in, as well as a history file records—New Zealand's GST came from an initial 15% to 12.5% approximately two years after its introduction. |

Contact: Logical Methods at (609) 476-0394.

# Q: Who shrunk their 386<sup>33</sup>? Answer: Q.

The new Q386<sup>33</sup> Slim is now in Canada!

Experience the full power of a 386<sup>33</sup> Cache machine in a space-saving Slim case! Q by Intel® now adds the 386<sup>33</sup> to its Slim series. With up to 8 MB of cached RAM and super fast AT extended VGA integrated on the motherboard, the Q386<sup>33</sup> Slim offers unparalleled value—a superbly designed machine. All of Q's Slims come with incredibly fast internal super VGA and five open expansion slots, ensuring ample room for future expansion—a feature made possible by the design of its manufacturers, the Motherboard Factory. And as with all of Q's computers, you get a two-year

limited warranty and a service center right here in Vancouver.

If you take your business seriously, go with Q for the answers. Q Personal Business Computers. Quality by design. Award-winning. FCC and UL approved.

See us at Oxford Computers (Caulfield Village, West Vancouver Telephone 923-2847) or visit our downtown showcase today (Suite 314 - 701 West Pender Street Telephone 686-7003).

Dealer inquiries are welcome.



The Q Line

Q386 33 Series  
Q386 33 Series  
Q386 33 Series  
Q386 33 Series  
Q386 33 Series

Q386 33 Series  
Q386 33 Series  
Q386 33 Series  
Q386 33 Series  
Q386 33 Series



The Personal Computer that Means Business

2000 West Pender Street, Suite 314, West Vancouver, B.C. V6V 1C7  
West Vancouver (604) 923-2847 Vancouver (604) 686-7003 Fax (604) 923-2847

**Fax Dominates Offices**

A survey of more than 1,500 companies conducted last fall revealed that fax machines are more available in 95% of offices, whereas 15% of offices do not have any desktop computers. How do they manage? In 15% of offices, everyone used a computer, and in 75%, all staff members regularly accessed a mainframe computer. Contact: Office Automation (804) 666-5867.

**The Award for the Best-looking Faxout Goes To...**

Fax technology continues to march towards ubiquity with the release of several PC-based facsimile tools that eliminate many of the hassles of early PC/Fax products.

SO-NET 8000 is a fax server product for local area networks that allows multiple users to compose, transmit and receive faxes simultaneously in their work stations. The SO-NET 8000 can handle

up to 8 fax lines.

Camfax, also available through a mail order of award for the best-looking fax cover pages on its cover sheet, comes in, as well as an end-user version for both the TGI's Fax O'Matic and Ring O'Matic, the best Ring O'Matic faxout and the Windows 3.0-compatible FAXit software from Allen Software. The company also offers a fax graphics service, for fast-turn setup of logos, brochures, signatures etc., and handles the transmission management

services such as electronic forms processing (known by fax), fax data retrieval systems, and general PC-fax tools and tips. Contact: Servers Corp. (800) 425-4021.

**Computer Shows Coming Up**

Sept. 16-18: The Vancouver Business Computer Show, British Columbia Conference Center, Vancouver as well as an exhibit on a Business Plan seminar from Telephones (800) 324-2837.

Sept. 18-19: International Teaching Forum and Conference, Coast Plaza Hotel, Contact: Sherwood at (804) 661.

2024 for conference registration. Sept. 19-19: CADA/PW International Forum, Coast Plaza Hotel.

**Lord of the Rings**

Using the new latest Ring service offered by most phone companies in Canada (including BC Tel), you can now have two different telephone numbers and two different telephone directory listings, but pay for only one line, plus a \$15 per month recharge for the feature.

To take full advantage of the system, you need a device such as the Goodson made Ring O'Matic (CH89) from TGI Technology, or the PC-800 enhanced call processor (CH87) from Windows Communications Systems. Either machine allows voice and data equipment such as fax or modem to share a single line. Because the system recognizes two distinctly different ringing patterns, the manufacturers claim they can make maintain. The PC-800 is available from Windows Communications Systems, 740 Clark Dr., Vancouver, B.C. V5L 3Y3.

Contact: TGI Technology (800) 870-4676.

**Who's Calling**

Extra pricing brought for telephone users with reduced numbers. A new system, called the Call Identifier, releases the phone company's (usually) Caller ID feature to display the caller's number when the phone rings and stores the number, date and time of the four most recent calls. Contact: Pyramid Software at (504) 943-0943.

**The Loan Advisor Is In**

Loan Advisor is a new CHS package that can calculate mortgage payments, interest on loans and—maybe—eventually pay to make money on mortgage conditions. Unlike for IBM and compatibles, the program, titled as "The key to saving thousands of dollars at your fingertips," is from BSA Systems, at (800) 375-4423.

**Say Hello Seven Information Networks**

Say, the national online information system, has added seven new information networks (INs). The system now has a total of 30 INs where they

## THE ALPS ALQe PRINTERS. ENHANCED BY POPULAR DEMAND.



## ALPS ALQe™ Dot Matrix Printers

At ALPS, our customers' suggestions are well taken. In fact, we just took some of the best and added them to our impressive ALQe dot matrix printers. The result: the new ALQe and ALQe-ec now meet superior.

• Rugged design good for 100,000 duty, 20 pages letter quality. Trade (printed) two resident type fonts for extra versatility.

• Paper parking and hold-in, push (pull) paper feed for excellent paper handling with less waste.

• 5 and 8-pin print resolution for printing 1/2 and 1/4 pin letters.

• Full compatibility with most leading PCs and software. Use ALPMatrix software for full printer control from your PC.

• Compact ALQe-ec has the standard paper size, self-cleaning 402250 transfer up to 1440x600 specifications.

See here's the best suggestion of all. Visit your ALPS dealer for a free ALPS demonstration today.

# ALPS

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T2A 0K7  
(403) 265-3499  
(403) 239-4317 Fax

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16035 - 107 Ave.  
Edmonton, Alberta  
T5A 0K3  
(403) 434-7408  
(403) 434-4929  
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1151 Collingwood Drive  
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(416) 673-3215 Fax

# MEGABYTES NOT MEGABUCKS

# o&b HOME AND OFFICE CENTRE

## HOT TECH!

Some items are out-of-stock. Check and double.

|  |            |
|--|------------|
| <b>486 VGA COMPUTER</b> with 20 MB hard drive & VGA graphics<br>All stores | <b>549</b> |
| <b>START LATEX PRINTER</b><br>Epson's Matrix 800                           | <b>999</b> |
| <b>QUADRIX MONITOR</b> 15"<br>Epson's Matrix 800 monitor                   | <b>579</b> |
| <b>QUADRIX MONITOR</b> 15"<br>Epson's Matrix 800 monitor                   | <b>979</b> |
| <b>QUADRIX VGA MONITOR</b> 15" x 15"<br>Epson's Matrix 800 monitor         | <b>799</b> |



**ASI 286 MONO SYSTEM**  
Features 12 MB 1.2 MB hard drive  
10 MB floppy, parallel, serial  
40 MB, 100 MB hard drive, or  
expandable memory card  
and 10

**849**

**286 COLOUR VGA SYSTEM**  
Features 12 MB 1.2 MB hard drive  
10 MB floppy, parallel, serial  
40 MB, 100 MB hard drive, or  
expandable memory card  
and 10

**1399**



**ASI 286 COLOUR VGA SYSTEM**  
Features 12 MB 1.2 MB hard drive  
10 MB floppy, parallel, serial  
40 MB, 100 MB hard drive, or  
expandable memory card  
and 10

**1799**

**286 COLOUR VGA SYSTEM**  
Features 20 MB 2 MB hard drive  
10 MB floppy, parallel, serial  
40 MB, 100 MB hard drive, or  
expandable memory card  
and 10

**2499**



**286 COLOUR VGA SYSTEM**  
Features 20 MB 2 MB hard drive  
10 MB floppy, parallel, serial  
40 MB, 100 MB hard drive, or  
expandable memory card  
and 10

**2999**



**286-28 COLOUR VGA SYSTEM**  
Features 20 MB 2 MB hard drive  
10 MB floppy, parallel, serial  
40 MB, 100 MB hard drive, or  
expandable memory card  
and 10

**3499**



**286 LAPTOP COMPUTER**  
Features 12 MB 1.2 MB hard drive  
10 MB floppy, parallel, serial  
40 MB, 100 MB hard drive, or  
expandable memory card  
and 10

**1649**



**286  
SYSTEM**  
with VGA  
Monitor & Printer

**999**

**o&b**

**999**



**286  
COMPUTER  
VGA SYSTEM**  
with Monitor & Printer

This coupon entitles you to purchase one  
286 Computer System  
with Printer & Monitor for only \$999  
Offer valid with coupon only.

**999**

1 and 1 system per coupon only.  
Offer expires March 31, 1991

**999**

### System Features:

- 286 12 MB
- 40 MB Hard Drive 40 MB
- 1 MB RAM
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The new list are: Computer News, Computer Illustrated, Ecological Society, Energy Pricing and Outlook, Innovation and Innovation + Risk, Revolution Ventures, and World Watch. Scotland Software Corp. (800) 478-2331.

### B.C. Manufacturers on Disk

One of the places you probably see, outside go in a directory of company names, addresses, phone and fax numbers, e-mails, 1203 and contact names, current and potential export markets, complete product listings, geographical and whatnot that is maintained by the Ministry of Finance and Corporate Relations.

Currently containing 1,400 companies and over 1,000 products, this B.C. Manufacturers' Directory is the subject matter of a new information-oriented system called *Index*, developed by B.C. software developer Syntron Software.

The package runs on PC compatibles and allows you to select companies by any of the above categories, browse or produce summary lists or detailed reports. *Index* is fully screen-compatible

and comes with documentation and free product support. Syntron is the \$998 package are scheduled to be released monthly. Contact Syntron Software (800) 288-9456.

### 100 on a Disk

B.C.-based PC vendor Q by Jewell has announced a new standard 100MHz-based computer that doesn't compromise requirements or performance. The

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|   |   |   |   |
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#### 386SX/16

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- 16MB RAM
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## NEWSBYTES

### CANADIAN NEWS Canada: Newsletter Aimed at Software Developers

EDMONTON, ALBERTA, FEB. 8 (NR) — Autostar, a startup company based here, is shortly to begin publishing a bimonthly newsletter for software developers, *How to Create Better Software*. The first issue, dated March/April, is to appear in early March.

Mark Goodwin, publisher and editor, told Newsbytes that *How to Create Better Software* arose from the publisher's own experience as software developer. "I've years in the field but had to make discoveries with what is currently being done," he said, "and we had some ideas that we wanted to spread around."

A group of eight people will work part-time on the project, Goodwin said. The newsletter will present programs, programming ideas, and techniques, with a focus on prototyping, reliability, productivity tools, and user interface design.

Subscriptions to *How to Create Better Software* will cost \$250 a year in Canada, US\$400 a year elsewhere. More information available by telephoning 403-489-4711 or writing to Autostar, Goodwin Enterprises, P.O. Box 885, Edmonton, Alberta, Canada T7G 2L4. Contact: Mark Goodwin, Autostar, 403-489-4711.

long-awaited breakthrough for the personal computer industry," said Ben Chou, president of the Cupertino-based company.

"Intel will do the Apple Mac same what the first developers of IBM-compatible computers did in the early 1980s - it will open up the market to increased innovation and competition by enabling major independent third-party manufacturers," he added.

Chou has been the creator of *Ultimate Drive*, a Silicon Valley computer hardware copyright expert, who said he believes that the Intel 80386 software does not infringe on Apple's copyrights. The Intel software costs more than \$20,000 based on code.

An interesting aspect of Intel's Macintosh clone software is that the graphical user interface implemented the Mac environment by using IBM's Mouse graphical user interface (GUI). The company claims that, with the addition of a silicon microprocessor, 80386 controller chips and your laptop, a Mac clone can be produced.

According to a spokesperson for Intel, the company is already discussing the possibility of supplying its Mac OS software — on chip and disk — as an original equipment manufacturer (OEM) team with several companies. Contact: Intel Computers - Tel. 408/875-5555, Fax 408/875-5557.

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## GENERAL

## Stories Carried By Other Media This Month

WASHINGTON, DC, FEB. 15 (NS) — Roundup is a brief look at some computer stories covered in other publications around here this past month.

On Sunday, February 11, The New York Times reported on the chattering conference of Silicon Valley companies regarding their ability to compete with Japanese developing the next generation of computers and software.

The Sunday Times also ran an item about the upcoming agreements among Compaq/CompuLink, Digital Equipment, and Microsoft to produce computers and software incorporating MIPS Computer Systems' chips.

Business of Computer Roundup News describes the Ultra-16 Network as a new item, while a separate news item the link various stories about Computer Factory closing 11 of its 16 stores, and a look at Apple's efforts to stop its education market from being swayed by other brands.

The Wall Street Journal for Monday, February 12, ran an item on the possible placement of cell phones on Japanese-made display screens for portable computers, which may cause higher prices for U.S. manufacturers based laptop and notebook computers.

Communications Worldwatch for February 4 carries a two-page story detailing

ing the recent Wall Street Journal story which indicated Microsoft's intention to drop DOS/2 development.

The Wall Street Journal for Tuesday, February 5, reported that Japan-based SBC has reached an agreement chip production rate decreased from four million units/month to three million units/month, apparently because of lower demand from the U.S. and Europe.

The Computer Roundup News gave information on two new Intel chips, the first is a low expenditure 20 megabyte 486SX without a cache memory expense, while the second is the Intel 486SX 60.

The WSJ also ran an item on Seagate's California-based Future Computer Technology's use of a Helium device to cool disks close to 33 degrees Fahrenheit; the technique apparently has more room than air-cooled disks for future without adverse side effects, and Seagate Systems used the Helium product to create its first effort to eliminate a faster, cooled-down version of its most powerful computer.

The Thursday, January 11, Journal reported on IBM's development of an inexpensive way to produce the very (about 1/44-inch) long microconductive lines currently used in many electronic devices. IBM plans to use these flexible data between computers and remote storage devices.

The Journal reports that Steve Jobs'

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## Monitors &amp; Cards

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|                         |                         |                         |                         |
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|-------------------|-------------------|-------------------|-------------------|
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## NEWSBYTES

comes with the Microsoft environment of the Apple Mac. The new budget VLS is about double nearly any of the enhancements that VS II for the Intel platform provides.

To do this, Novell for Mac VS II is implemented as a set of Network Loadable Modules (NLMs) that the company claims to deliver high-performance AppleLink File Protocol (AFP) and Protocol Access Protocol (PAP) services for Mac clients on the Macintosh VS II environment. As with earlier versions, Novell for the Mac VS II allows Mac users to share and access peripheral attached to Network-driven PCs over a network.

Novell's LAN Workplace for 3038 4.0 offers a variety of diagnostic hardware and software enhancements to help together using the TCP/IP protocol standard. The software will allow the company clients, almost any Ethernet Token Ring or Arcnet adapters.

As with the bulk of Novell's products to date, all the new products and upgrades are priced according to the number of licensed workstations required by the user.

### CE Software Introduces QuickMail for PC LANs

WEST DES MOINES, IOWA, FEB 11 (NR) — CE Software will demonstrate a PC/LAN version of QuickMail/NovellNet in Boston during February 10, 1991.

QuickMail Net 3.0 will be available in the second quarter of 1991, and is available in 5, 10 and 50 node packs. The 10-node pack has a suggested list price of US\$999.00.

Brad Sherk, director of marketing for CE Software, says the new release has increased performance and supports a complete family of APIs, providing developers with a platform to build mail-related applications and collaborative applications. Sherk says the product is the result of customers' requests, and believes that the new product will be a major contributor to the company's fiscal 1991 sales results. QuickMail has been available for Apple Link networks for several years. CE spokespersons also told Newsbytes that there are over 500,000 QuickMail users worldwide. Contact: CE Software, 315-521-0995.

### Xerox Introduces Network Fax Server

BOSTON, MASSACHUSETTS, FEB 11 (NR) — Xerox Corporation has announced the introduction of Xerox LAN/Fax Express II, a fax server designed to provide facsimile transmission service to personal computers using Novell local area networks.

LAN/Fax Express II, shown for the first time at the World '91 Boston industry trade show, consists of a Xerox Telecopier 7000 plus paper handler.

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terminal and the LAN/Fax Express hardware necessary and software. The complete system will have a single unit list price of \$6,995 while customers who own a Xerox 7000 or 7001 kit will be able to upgrade their existing options by purchasing the LAN/Fax Express II accessory in the single unit list price of \$2,995. Orders taking the system will begin in Washington, Chicago, Los Angeles and Atlanta on March 1 and cascade out approximately July 1.

Xerox stated that users of LAN/Fax Express II can, without leaving a personal computer application that generated the output, set up the fax distribution and resolution and transmit. The software provided includes more than 100 fonts and supports the Hewlett-Packard LaserJet PCL page description language, as well as ASCII and PCL. Incoming faxes can be directed to one dedicated mailbox, moved on the fax server or printed directly.

In addition to the network-related uses of the system, the paper-based capabilities of the PCL facsimile terminal remain available for desktop LAN/Fax Express II also allows users to scan documents into the network for storage as a PCL graphics document. Once a document has been scanned, it can be viewed, routed to others on the LAN, stored, printed, or retransmitted. Contact Xerox Corp., 800-833-8879.

**Lotus to Buy E-Mail Company**  
CAMBRIDGE, MASSACHUSETTS, FEB 11 (AP) — Lotus Development, apparently in the midst of a buying spree, has agreed to purchase eMail, the company that sells a LAN-based electronic mail package of the same name. Lotus' purchase of eMail would be its second acquisition in recent months and its second attempt to enter the LAN market. Last year's attempted merger with Novell fell apart, but the company maintained momentum in purchasing word-processing company firms.

eMail, the product, runs under MS-DOS, Windows 3.0, OS/2 and the Macintosh operating system. The privately held company claims 600,000 users worldwide at \$1.1 million in the fiscal year ending March 31, 1992. No profit figures were released.

The purchase price was not announced. The companies expect the purchase to be consummated within 90 days, they said.

The 25 employees of eMail will remain in Mountain View, California, the companies said. Contact Lotus, 617-699-1284, ext.264, 617-691-8908.

**Microsoft Offers 3COMLAN Manager Conversion**  
REDMOND, WASHINGTON, FEB 11 (AP) — Microsoft has announced a program for customers wanting to convert from 3COM 3+Open networks to Microsoft LAN Manager, involving the addition of Microsoft and Netware connectivity to LAN Manager.

The initial conversion starts from last month's decision by 3COM to get out of certain lines of networking business. It supported the Microsoft LAN Manager and Novell Netware operating systems, while adding 3COM features to the LAN Manager software line.

Under Phase One of the program, 3COM users can upgrade LAN Manager 2.0 as a special price through June 30, 1993. In Phase Two, Microsoft plans to enhance its core product line to incorporate 3COM functionality, including Macintosh and Netware connectivity and enhanced tools for network support.

Microsoft is also working to ensure interoperability between LAN Manager and 3+Open file servers, and with 3COM's Station Manager user interface.

Contact: Microsoft, 206-463-6666

### Castille Introduces Network Fax Server

SANTA CLARA, CALIFORNIA, FEB 12 (AP) — Castille has introduced an enhanced version of its ProFax network fax server for the Novell NetWare (386) LAN Server and Microsoft Windows-based area networks. The new version will be added this fall, so that integrators can be contacted now and simultaneously on higher volumes of orders as the shipped is set out.

ProFax II features built-in HP LaserJet or Postscript raster image printing, which converts network printing output into the 800 dpi per inch Group II fax resolution. Any documents that can be printed on the network to an HP-compatible or Postscript printer can be faxed without any special conversions or utilities.

The ProFax II, with 4.5 million bytes of internal memory, 3 line phone lines, optional Postscript HP PCL printer capabilities and Token Ring, Ethernet or Arcnet network controllers, will sell for \$4,995 when it becomes available in the second quarter. The original single telephone ProFax will continue to be sold for \$4,995. Contact Castille, 408/496-0474.

**LAPTOPS**  
**Toshiba Notebook PC**  
FREMONT, CALIFORNIA, FEB 8 (AP) — Everset has announced the Tempo LX, a 386SX-based notebook computer with a retail price of \$3,995 and that weighs 6.8 pounds.

Measuring 2 x 13 x 22 inches, the computer is powered by a rechargeable NiCad battery pack for two hours and manual power-management controls to extend battery charge.

Equipped with a heated backlit CFL liquid-crystal display, the Tempo LX features a non-glow VGA screen designed to reduce eye strain and enhance visibility. The LCD display (Matrox) displays standard 640 x 480 resolution and will display up to 75 shades of gray at 80 x 200 resolution.

The product comes with 1MB of RAM

expandable to 5MB, an internal 1.44MB floppy drive and internal 30MB hard disk. A clock for an Intel 80386, an external VGA monitor port and a serial and modem slot are also included. For more information, call 408/499-1111 or 800/721-8888.

### NEW WORLD Quickbuild Changes Hands

SEATTLE, WASHINGTON, FEB 9 (AP) — Quickbuild, the shareware PC word processing firm, has changed hands, a development that may result in more traditional marketing for its products.

Leo Nelson bought Quickbuild for its unbranded core from founder Bob Wallace, Newlynex Inc. founder. Wallace

is singing with the firm on its full-time software development.

Nelson, a PC-Writer user since 1985, is the former marketing director of DataLynx, a maker of integrated circuit programming hardware, Washington. He was at Microsoft from 1983 to 1989, where he was marketing manager for Windows 3.0 and Microsoft Networks. Before that he worked for Xerox, and was credited with Microsoft's first Xerox file installation.

Quickbuild makes PC-Writer and PC-Writer-Lite word processors, as well as PC-Writer, a pop-up file scanning and hypertext tool. There are an estimated 500,000 users of PC-Writer worldwide. Contact: NW-893-6481.

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## Deadline to Publish Bill Gates Biography

**NEW YORK, NEW YORK, JUNE (30)** — Bill Gates, the college dropout who has essentially revolutionized the world by leading Microsoft into the world's largest computer software company, is to be the subject of an independent investigation by the FBI.

The book, entitled "Billon Dollars Bill Gates and Microsoft and How They Grew," is scheduled for hard-cover release in 1993. Considered for the project are Stephen Moore, a columnist with *NBC's* *Computer* program and the author of more than thirty books as well as being a software designer; and Paul Anderson, a high-tech reporter for the *South Times* who has his own weekly column.

Announcing plans for the book, Moore commented: "Bill Gates is the most sophisticated person in the computer business."

The authors may be contacted directly via CompuServe. In addition, Moore can be reached via MCI Mail 079-4234 (219-4234) or [moore@mail.comcast.net](mailto:moore@mail.comcast.net) (Internet [billmoore@comcast.net](mailto:billmoore@comcast.net)) and fax at (242-722-4205). The new line for reaching Moore is 800-722-0223 while Anderson's voice number is 800-722-5195.

## CA Updates Bedford Accounting, Cuts Prices

**GARDEN CITY, NEW YORK, JAN 29 (30)** — Computer Associates has released updates of its Acropac Bedford accounting software with lower prices and a simplified menu. The former Acropac Bedford long used Accounting for Macintosh and Acropac Bedford simply Accounting for Macintosh, have been renamed Acropac Bedford, and the price is now the same for both versions.

The price change is not a significant cut in the cost of the Macintosh version, which previously had a price tag as the \$124,400 range. Both versions now sell for \$124,195, or in Canada, C\$215.

Mike Kendrick, director of sales for North America, told *Newsbytes* the price reduction on the Macintosh version was partly a response to Apple's introduction of new low-priced Mac models last fall. That move will make the Mac more attractive to small business, he said, as CA wants the Bedford software to appeal to that market as well.

In general, Kendrick said, CA hopes to bring Bedford to achieve its broader user base.

CA acquired the software from Bedford Software (now Bedford Software) of Vancouver in 1989.

The latest release also adds multi-currency features that will support the new Federal Goods and Services Tax in Canada. Contact Computer Associates, 604-733-0344.

## Work-Group Printer From Kodak

**NEW YORK, NEW YORK, JAN 30 (30)** — Eastman Kodak has unveiled a multi-function laser printer which is aimed at workgroup users. The 16 pages

per-minute Daigloph 7014 printer uses light-emitting diode technology to provide 300-dots-per-inch resolution.

Company spokeswoman Margaret Beaumont told *Newsbytes* that the unit is compatible with both Apple Macintosh and IBM-compatible computers. The unit can emulate the Hewlett-Packard LaserJet printer, as well as several other popular workbooks with support for the Postscript page description language (PDL) available as an option. The Daigloph 7014 accepts paper from

up to four sizes or networks.

The printer functions as a continuous copier, making up to six copies per minute. It comes with two eight paper trays and can operate in continuous copy mode, returning to the second page as when the last is ready.

The printer, as well as photo copiers that Kodak announced at the same time, feature Kodak's small particle development (SPD) image technology, which contributes to image quality approaching that of offset printing, the company

says.

The basic unit has a suggested retail price of \$1,095, \$995, \$895 and \$795, broken Postscript support, the Daigloph 7014 costs \$1,295, \$1,195. Contact: Eastman Kodak, 214-523-0000 or 800-344-0000.

## IBM, Compaq, Dell, and HP

Telecom Console, Consumer Software Announces Link

**VANCOUVER, B.C., JAN 29 (30)** — Users of Microsoft's Corel software and software from CompuServe Software have



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can now exchange messages with subscribers to Kany 180, Telecom Canada's public electronic mail service. Telecom Canada, the Ottawa-based consortium of Canadian telephone companies, has announced that Consumers' Network Canada's 400 gateway has passed its certification tests.

Comcast's Network Center 400 software includes a gateway conforming to the international X.400 standard for e-mail interchange. Michael Danzberg, a spokesman for Comcast, said that a version to carry ISO, the allow the addressees to connect to public e-mail networks in Switzerland, France, Australia, the Netherlands, and the United Kingdom, and to the international Internet network. Testing is under way on a connection to MCI Mail in the United States, he added.

Tom Schwesbopf, a spokesman for Telecom Canada, said the 8,000-subscriber Easys system already links to a variety of external systems, including those running on IBM mainframes and microcomputers from Wang and Data General, as well as other public access networks around the world.

Marquette, Canada operates on a version of local time standards.

Commware Software also announced The Network Gateway to IDTP. This software will let Network Commware users exchange messages with users on e-mail systems that support the Simple Mail Transfer Protocol (SMTP). It will be CTR 330 per gateway component, and CTR 300 for each additional "post office" or server. Contact Telecom Canada, 800-421-7820, Commware Software, 604-923-1740.

### Garrison Says Korea Is Taking U.S. Policy Issues Too Slowly

STAMFORD, CONNECTICUT, FEB. 12 (RE) — Gartner Group says the fax market has developed a new twist. This time Kerox of the U.S. is the leader, and the Japanese are the hunters.

Philips' Group Inc. is in the electronics and consumer from Texas base, and notably had the market, according to the new Commerce Market Analysis. These are mainly in business and professional services offices which use the services of fax equipment, sending or receiving, mostly through 11 million pages per week. Commerce is sponsored by producers of millions of printed circuit telephone systems, computer systems, long-distance, telephone services providers, facsimile, data communications, and personal computers and software. Fax sends pages per week 11 million pages per week in 1990, in 340 million pages per week in 1990.

John Knight of Countywide Newspapers Kono was the first into the print-paper marketplace, but that the company has long been an invisible player in the fast market. "Our study has shown Kono being their commanding leader in the fast marketplace," said County's John Knight. "When we first started the study, Kono had 51% of the whole marketplace. Now it's 54%." But this is an enormous market.

place. "People complain that the paper's costly, and you never know when the roll is going to run out," Gombert, Coaster, 705-555-6666. NOT MAIL. 404-555-6666.

### Electronic Information Business Fides: Our Responsibility

WASHINGTON, D.C., FEB 1 (ME) — The electronic information business will follow the current recession with growth of around 10%, according to the U.S.

**Abstract**

In its annual "Industrial Outlook," issued at the beginning of each year, the department said \$5 billion in revenue was generated from manufacturing plants started online, with aspheric lenses, on CD-ROMs and by phone, in 1998. That number is expected to go up to \$15.5 billion in 1999, with aspheric and CD-ROM leading the way. Contact: U.S. Department of Commerce, 900-375-0299.

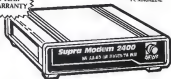
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**More Chip Breakthroughs**  
SAN FRANCISCO, CALIFORNIA, FEB. 15 (ENR) — New chips for broad-band telecommunications and a new 64-megabit DRAM are the latest developments to come from the International Solid State Conference.

Toshiko claims to have developed an

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  - **WHO** - World Health Organization
  - **UNICEF** - United Nations Children's Fund
  - **UNEP** - United Nations Environment Programme
  - **UNESCO** - United Nations Educational, Scientific and Cultural Organization
  - **UNHCR** - United Nations High Commissioner for Refugees
  - **UNODC** - United Nations Office on Drugs and Crime
  - **UNWFP** - United Nations World Food Programme
  - **UNWOMEN** - United Nations Women
  - **UNEP** - United Nations Environment Programme
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tion) telecommunications chip capable of applications transmission of data, video, and images. Toshiba says it processes up to 1.5 gigabit of data per second, an amount equal to 10,000 telephone lines.

Toshiba says it also has produced a CMOS chip to control operations of networks, radio machines which adapt a common buffer for input and if output ports. It reportedly has one million transistors and will ship in 1992.

Mitsubishi, Mitsubishi Electric Industrial Co. Ltd. of Osaka, Japan, claims to have developed the latest 64-megabit dynamic random access memory (DRAM) DRAM — meaning two square megabits — and, raising it 50 megabits, but it may reach the market until 1993, the company says. The chip can store over 512 pages of computer text.

Mitsubishi says that as semiconductor has grown power while decreasing in size, chip density has caused manufacturing and technical problems. Signals from nearby transistors overlap and it becomes increasingly difficult to distinguish individual signals.

Mitsubishi claims to have substantially reduced this problem, known as crosstalk noise, by applying a memory circuit technology to reduce power supplies and drivers are broken up and introduced to serve on other memory areas.

This new technology, which uses Mitsubishi's original Masked Power Line

and Distributed Sense Amplification Buffer construction, enabled the company to achieve power source distribution and higher access speed. Moreover, symmetrical drive layout design with an aluminum shield would place, Mitsubishi achieved a 90 percent reduction in electric power and a 50 percent reduction in peripheral circuit area, the company says.

To get the chip's circuit lines consistently fine, Mitsubishi has adopted a sub-micron process technology known as full exposure laser lithography. It will also be used in Mitsubishi's second-generation 64M DRAM chips.

Mitsubishi has applied for twenty Japanese and two overseas patents. Contact: Mitsubishi, 311/546-7300.

### New Publication Devoted to Virtual Reality—CyberEdge

MILL VALLEY, CALIFORNIA, JAN 31 (ENR)—The emerging study of virtual realities and related technology has spawned another publication. *CyberEdge* journals are one newsletter that will cover the field of interactive computer interfaces available to those with a professional interest in the field.

Subscriptions are \$20/year until February 28 when the price goes up to \$27/year. *CyberEdge* Journal 1608 Cornwell Road, Mill Valley, CA 94041, phone 415-585-0458 or fax 415-585-0451.

### DRAM Prices Fall Sharply

TOKYO, JAPAN, FEB 18 (ENR)—The dealer price of a 4-megabit dynamic random access memory (DRAM) chip has slipped by 15 percent since last fall, according to the Nikkei daily newspaper in Japan.

A 4M DRAM chip cost 14,000 yen (10,000 yen (\$66) and \$115) when it made its debut in 1989. Today, the same chip costs 5,000 yen (\$37) — less than two-thirds the price two years ago.

Mitsubishi, a 7M DRAM chip costs about 800 yen (\$6) at present. That has caused many in the industry to conclude that 4M DRAM chip is still relatively competitive by comparison.

Interestingly enough, however, the per megabit price of a 9M DRAM chip is about the same price of a 7M DRAM chip. Yet, despite the fact that single 4M chips are cheaper to produce and install than a 1M DRAM chip, suppliers are favoring the 1M chips over 4M chips by a factor of six times.

The Nikkei daily newspaper concludes, however, that the industry will shortly begin to favor 4M chips due to the decline in price of high-capacity chips.

### Times Reports Secret Computer Pact

NEW YORK, NEW YORK, FEB 12 (ENR)—According to the New York Times, executives of Microsoft, Compaq Com-

puter and Digital Equipment have secretly agreed to form an alliance to develop a new personal computing standard based on a centralized architecture and computing (RISC) technology developed by MIPS Computer Systems, Inc.

The Times story, written by John Markoff and appearing in the Saturday, February 9 edition, tells of a secret meeting between California executives at which the plans were formed. Sources for the story include the companies agreed to define standard specifications for a personal computer to be built around the new MIPS R4400 chip and software being developed by Microsoft and the Santa Cruz Operation, a software company partially owned by Microsoft.

According to the Times paper, the key players in the alliance is Compaq, which has been rumored to have been discussing retooling on a second hardware platform (an addition to the Intel 80486-80486 line) with early firms as MIPS, Sun and Hewlett-Packard. A top Compaq official, contacted by ENR, would not comment on the story, saying only "These rumors have been going on for a good while."

Compaq has had an on-going relationship with Microsoft since Compaq's founding and has just announced a joint customer support and integration program with Microsoft and Santa Cruz (as well as Hewlett and Sun).

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domino computer industry commented in *Newsbytes* on the Times report, saying: "I think that the momentum of these three is small, as there is quite a lot of discontent with the limitations of software on the MS-DOS world. That's the one line to collide together on operating system, a memory manager, a graphics user interface and a networking system is a problem. It both creates immediate need for solutions and there who support these and make for a less robust system."

The continued 7% transition in place there is always difficult but it can happen because of discontent. The first step is getting together because comparing profiles is the starting MS-DOS platform from NeXT and IBM are competing and are getting attention. It makes sense for Apple Inc. Company and Microsoft to consider another first on the marketplace."

**UNIX**  
**WordPerfect for NeXT Ships**  
OREM, UTAH, JAN. 14 (UPI) — WordPerfect Corporation has announced that it is now shipping a WordPerfect word processor version for NeXT's NeXT computer. WordPerfect support, although full when implemented, of the NeXT operating system's graphical user interface, enhances the programs is comparable in terms of features

to MS-DOS version 5.0, the most sophisticated version of WordPerfect. WordPerfect for NeXT provides full WYSIWYG (what you see is what you get), the complete document manager in another set, as well as in print, and files are compatible with WordPerfect 5.0 or 5.1 for MS-DOS.

WordPerfect for NeXT has a list price of US\$699 or C\$145.

**WINDOWS**  
**Microsoft Says OS/2, Windows, DOS intertwined**

SEATTLE, WASHINGTON, FEB. 4 (UPI) — Finally, Microsoft has decided to acknowledge open cooperation "Microsoft Operating Systems" and admitted by *Newsbytes* indicates that Microsoft has extensive, interlocking plans for the future enhancement and development of DOS, Windows and OS/2.

MS-DOS 5.0 — the next version of MS-DOS — was expected to shipping well as more than 7,000 beta test workbooks. It is designed for minimal memory use, ease of installation, expanded utilities, advanced support capabilities — and is being "complementary" to Windows.

Windows 3.1 is being revised, and will offer TrueType outlines from integrated into its graphical user interface, offering something close to what you see what you get that the current version of Windows manages to achieve. Improved network support, error reporting, DOS application support and, of course, performance was also promised. Windows 3.1, however, will be compatible with Windows 3.0 device drivers. Windows extensions will also be developed to support multimedia, audio, and professional environments.

A 32-bit version of Windows is also being studied for the "mid-range" market, and a developer toolkit is to be available this year. It will be open-architecture, multi-threaded operating system (rather like OS/2) allowing two graphics windows space per application, and each separate address space per application.

Windows-31 will use the same internal system and structure as the current Windows, making upgrades easier for software makers. The Windows-31 graphical extension will include better icons and device-independent icons, and its networking extension will include interprocess communication. For better integrated integration, Windows-31 will support single large character sets called Unicode.

For OS/2, "Windows libraries" are being offered that let OS/2 run Windows applications, if only to test conversion. Microsoft, meanwhile, explaining a "New Technology" OS/2 kernel that will not only run Windows applications, but will include a built-in device file system, integrated network functions, multi-network support, and the sharing of device drivers with DOS and Windows. It will run on IBM and non-IBM machines, use IBM machines. It will also be used as the basis for a distributed operating system for network environments.

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#### OTHER BAIT REVIEWS

PC World (Nov. '90): "GEOs could be the biggest thing since Windows."

PC Magazine (Nov. '90): "You owe it to yourself to understand GEOs and the choices it offers."

InfoWorld (Nov. '90): "GEOs appear to be superior to Windows in everything but size, stability, and the number of available applications."

Computer Paper (Jan. '91): "I could not find a single bug in PCGEOs."

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The ultimate goal is "information at your fingertips" for "more personal" personal computers, combining their text, computing, multimedia, pen input, and object-oriented features like linking and embedding.

Meanwhile, Microsoft announced this, by its calculation, there is an installed base of 60 million DOS computers out there. Windows 3 has sold 3.25 million copies retail, another 500,000 OEM copies have been sold, and 40,000 developers have been sold. There are some 200 thousand Windows applications on the market. For OS/2, more than 200,000 copies have been sold, there are more than a hundred applications available, shipped by about 14 vendors. Contact: Microsoft, 206-486-8800.

**New Database for Windows**  
GRAPEVINE, TEXAS, FEB 11 (ENR) — Microsoft Corp. has announced a new database for Windows, dBase III multiuser relational database management system, compatible with dBase III and Clipper databases and applications.

Designed to provide a single document interface, dBase knows a thing or two about creating other windows, and a programming language for the database applications. Programming code can be entered in a very dense field of Windows control facility.

The product is to be available in March. Demonstrations available are

available on request. Contact: Microsoft, 817-444-0338.

### Maximizer Update, Windows Version Soon

VANCOUVER, B.C., FEB 6 (ENR) — Richmond Technology Software has begun shipping Version 3.1 of its Maximizer project management software. The company is also working on a revision of the package for Microsoft's Windows operating environment.

Architectural Version 3.1 includes the ability to create a separate set of files for use by multiple copy of the program, another to merge changes in those files into the originals. The new version also lets users switch between multiple databases without exiting the program, change spellings, finish database entries, back up and restore data files, and can print to a file for later output. The new version can also be set to run a startup menu automatically. Contact: Richmond.

The single-user version of Maximizer 3.1 lists for C\$995, while a network version costs C\$995. The single-user upgrade price is C\$495, and company spokeswoman Janette Price.

Price said the licensed development team is working on a Windows version of the package now. She said that rule was a revision for the Apple Macintosh, but said that was definitely on the agenda at present. "Our focus is still to stay with the PC," she said. Contact: Richmond.

Technology Software, 604-595-2123.

### GO TRAINING KIT GO Develops AppleTalk for use with Pen

GILBERTO, CALIFORNIA, JAN 18 (ENR) — Apple Computer Inc. and GO Corp. have announced that AppleTalk has been licensed by GO for its new pen-based operating system, PenPoint. The AppleTalk network link software was licensed from Apple under the AppleLink Licensing Program.

Apple began licensing AppleTalk in June of 1989 and the licensing to GO represents the opening of AppleTalk to pen-based systems.

In a related move, Apple also announced that it has also licensed to the networking software in PenPoint's new software from other products. The new product, designed to be integrated into portable computers, brings network networking to the portable market. Contact: Apple Computer Inc., 404-474-5030; GO Corp., 415-545-7488.

### Vancouver Startup will Focus on Pen-based Software

NORTH VANCOUVER, B.C., JAN 11 (ENR) — A new software company here plans to develop applications for pen-based computers. PenMagic Software will focus first on the PenPoint operating system recently announced by Go Corp. of Foster City, California, president and



co-developer Norman Francis told ENR.

"We've focused a company to develop pen-based systems," Francis said. "We happen to have chosen PenPoint as our model target." Francis said his company there will be first or first pen-based operating system on the market. Early work, including the Pen Windows system recently announced by Microsoft. PenMagic may develop for systems other than PenPoint in future, depending on market demand, he said.

The company's current work on two applications, Francis said. One is a financial package, somewhat like a productivity spreadsheet. The other is a pro-

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financial nightmare. The latter is a natural for post-processed systems, Ponce said, because the major drawback of such software on desktop computers is that users can't easily carry it around with them.

The company hopes to be ready to release products by the fourth quarter of this year, which Ponce predicts is roughly when PostPoint should have been sold out to appear.

Postbridge currently has three employees. Krasinski and Keith White, who is

Postbridge's vice-president of research and development, were co-founders in 1979 of Basic Software Group, which developed the Acropac accounting software. They sold Basic Software Group to Computer Associates in 1985. Mark DuMont, who also worked at Basic Software, is Postbridge's director of software development. The company is actively looking for more staff now, Ponce said. Contact: PostMaps, 404-488-9882.

#### NCR To Use GO PenPoint in Handfield PC

DAYTON, OHIO, RTM (NR) — Computer manufacturer NCR has announced an licensing of GO's PenPoint operating system. The software will be used in control NCR's upcoming Handfield PC.

Already a member of software manufacturers' trade associations support for PenPoint. This pre-processed operating system will allow users to update information, locate data and export handwritten text.

Unlike traditional keyboard and mouse operating systems, PenPoint can be used in a mode where it looks like handwriting styles of each user.

NCR has said it will use the operating system in both handheld and desktop machines (with an aggressive graphics card), and expects it to be used mainly in personal productivity applications such as time management, note taking and data logging/recovery. While both the said and Microsoft's pen operating system will interface with DOS, not allow DOS applications to be run, PenPoint, especially, is expected to open a new sub-class of software using the power and benefits of this type of interface.

#### Microsoft Shows PenWindows

SYDNEY, AUSTRALIA, RTM 3 (NR) — Bill Gates, visiting Australia, has demonstrated the upcoming Microsoft Pen Windows operating system for the first time to public. More than 4000 industry representatives attended his presentation in Sydney where he also demonstrated multimedia and other new PC technologies.

Gates told the audience that Pen Windows would be available within a year, and would not require a separate handwriting to ASCII scan in the computer — something which industry analysts speculated might not be able to do. He showed how users would use familiar pen movements, such as clicking a word by pointing from through icons on the screen.

With his multimedia demonstrations, Gates showed high-resolution graphics, movement, and sound, all coming from a PC application. He said that he would get used to lacking traditional characteristics of the hard object as well as to look at a spreadsheet.

Microsoft is currently showing an "Introduction of New Penpoint" strategy, which focuses on co-see PCs with graphical user interfaces, rapid growth in personal PCs, easy access to an increasing range of data services integrated fax, phone, email, and voice mail, bringing PC to the home all together, software as small, powerful notebook and palmtop PCs, and multimedia, with email, video and data, on a PC. Contact: Microsoft Australia 404-452-0200.

NEWSBYTES News Network is the largest independent computer industry news service in the world, published continuously since May, 1983, with 4 U.S. and 2 international bureaus in London, Brussels, Toronto, Tokyo, HongKong, and Sydney, Australia. Dedicated to gathering the week's most significant computer and computer technology news, NEWSBYTES was honored to receive the "Best Online Publication" award from the Computer Press Association. Editor in Chief, Wendy Woods; Janet Lindgren, Dana Markowski, Steve McCormick, John and Barbara McGowan, Dave Galt, Peter Wilkins, Ken Takahashi, Noriyuki Katsura, Paul Zucker and Sam McGowan, Keith Cameron, Norman Wingrave, Karl Schaefer.

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Starting  
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# Desktop Publishing

(Or How To Keep WYSIWYS  
from becoming WYSIWOOOPS)

by Graham Barnall

## Personal publishing

Personal publishing, thanks to the technological tools available, has blossomed into a multi-million dollar industry. Freelancers, churches, universities, documentation services, lawyers, publishers, artists, writers, advertising agencies and people at thousands of other occupations are discovering the advantages of desktop publishing.

To purchase Earl Marx, personal publishing systems put the means of production in the hands of the people, (or at least) desktop publishing. The power of the press belongs to those who own one. Apple had all the necessary elements

for a publishing system in January 1985 when it introduced the LaserWriter, the first printer to include the PostScript page description language. The trouble was, too many people at that time seemingly understood the potential of the "personal publishing" market.

Apple was later dropped as a poorly conceived use of the equipment dubbed "The Macintosh Office," telling us that the LaserWriter would be great for writing "serious work" personally. Meanwhile, Apple Corporation

was putting the finishing touches on a program called PageMaker. Suddenly, the concept of using a Macintosh and a LaserWriter for "publishing" went from a small niche into an accessible mass market.

In November 1985, when PageMaker was rolled into an advertisement with high credibility printed as a "PCALL" and (as heard and seen in letters), the Macintosh IIxMB hard disk was advertised as "high capacity," the term for

what we now regard as DTP was "page proofing." The ubiquitous phrase "desktop publishing" was coined around this time by Paul Brannen, Adobe founder and president. It was a term clearly inspired by the "desktop metaphor" that revolutionized the graphical user interface for the Mac, so it had been for the LaserWriter systems before it, and it quickly caught the imagination of press and publisher alike.

By November 1986, the term Desktop Publishing was common parlance in the magazine, even appearing with a (TIB) after it, in the name of a publication from PCW Communications entitled "The Name is at Desktop Publishing Reports." (Tony Bero and Cheryl Rhodes remain leading sources of electronic publishing info.)



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### System Configuration:

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- 1 Floppy / 1 Serial / 1 Game Port
- IDE hard/diskette drive controller
- Maxtor 40MB IDE hard drive
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- Mono graphics/cursor card
- Hercules Hi-Res 12" monitor
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| Model   | Processor | RAM | Storage                           | Price  |
|---------|-----------|-----|-----------------------------------|--------|
| 80286AT | 80286     | 1MB | 1 Floppy / 1 Serial / 1 Game Port | \$870  |
| 80386DX | 80386DX   | 1MB | 1 Floppy / 1 Serial / 1 Game Port | \$1570 |
| 80386SX | 80386SX   | 1MB | 1 Floppy / 1 Serial / 1 Game Port | \$1285 |

Agreed upon the terms, and soon had upon publishing "The Apple Computer Desktop Publishing System," typically consisting of an Apple II or Macintosh Plus, a LaserWriter or an IBM successor, the LaserWriter Plus, and, to control the page assembly process, Aldus PageMaker software.

By the time PageMaker II spread over the Mac, Aldus was preparing to release an IBM version of PageMaker. A myriad of competitors soon sprung up

for all types of computers to ride the burgeoning wave, with ten or more Mac packages and more than 50 others for the IBM PC announced or available by May 1987.

#### What to Look For

But for all its impact on the market place, PageMaker was not the first computer-aided publishing program. Jonathan Berghold, founder of the *Keyhole Report on Publishing Systems* and author of

*The World of Digital Typesetting and Publishing from its Beginnings*, has been involved in the field of computer-aided typesetting and publishing since 1945. In an article written in the May 1987 issue of *DTT* magazine, Berghold established the criteria for a useful desktop publishing platform. Transcriptions and paraphrases, it should:

• let you compare text in a manner that approaches the requirements of typesetting—that is, well-designed and

proportionately spaced characters, with such typographic considerations as automatic hyphenation, kerning, multiple first and last lines.

• The system should perform these tasks in a manner considerably less cumbersome than the manual language found on traditional high-end computerized typesetting equipment. This strongly supports the concept of WYSIWYG (What You See Is What You Get) through on-screen and point-and-click accuracy that approximates paper versions.

• The system should allow the inclusion of graphics on the page of text. The system should also provide some means of creating or importing images, and performing variety of manipulations on these, such as sizing, cropping, rotation or enhancement.

• Interactive composition and editing capabilities should allow you to look at a composed page on the screen, identify a word or sentence that needs removal, and make the changes, at you might wish a word processor.

• Finally, the system must be able to output on at least one device that offers a resolution of 300 or more dots per inch. Beyond that, the system should interface to one or more RIPs (raster image processors) that work with machine-independent IDLs (page description languages), capable of converting to a variety of devices, from laser printers to high-resolution dot-matrix machines.

#### PostScript

PostScript is a good example of such a DFL, allowing the IDLs to generate of fine-quality pages on a relatively low-cost PostScript laser printer (in the cost of a few cents per page), before sending the files to a more expensive laser (300-dpi) output (at a much higher cost per page.) Because both devices use the same DFL, the graphics character shapes and spacing can be effectively checked on the lower-priced.

#### Why DTP?

Here's how desktop publishing gives you greater control over how:

- You don't have to redo work
- The work speed up the work
- You cut down the second time
- You cut down the time it takes to make last-minute corrections.

As Paul R. Foster wrote, "This is one application of personal computers where you can immediately see the real publication in the expense budget."

#### Why Not DTP?

The disadvantages of DTP include:

- The tools may exceed the talent. DTP programs should all come with a crash course in graphic design. And unfortunately obvious, they don't.

- Inadequacies in the technology, especially when dealing with large or complex files. The frustrations can be overwhelming when a file just won't print. Also, sometimes people get so hooked on the process, that they fail to enter

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## DESKTOP PUBLISHING

- Extensive mail training widely available
- Virtual memory support via Windows 3.0 (optional extra RAM)
- DTP-compatible laser printer now prints full-page graphics at 300-dpi
- Windows 3.0 and Adobe Type Manager provides PostScript screens and gives you fast responsive on-screen typography handling. GetWorks offers similar capabilities



### 3845K Disadvantages

- Many different standards may lead to incompatibilities or extra hassles
- Some may find 3845K's command language complex and arcane
- Poor performance when using graphics-intensive programs such as Windows
- Weak open-level printer, font and graphics support
- Limited personal color separation capabilities
- PostScript options for the 3845K are limited to software-based interpreters such as UltraScript or Freedom of the Press which tend to be slower and demand to use than a cartridge-based software or true PostScript printer

### Mac Budget System

- Mac Classic (2MB RAM, 40MB hard disk) ..... \$1,095
- Canon BJ16C (280-dpi) or HP Deskjet 200 (300-dpi) printer ..... \$450-\$750
- Adobe Expert software and FontLab interface ..... \$150
- TimesTen Publish It Easy ..... \$250
- Adobe Type Manager ..... \$80
- Optionally, a 2400 baud modem for sending files to a service bureau for high-res or color output (add'l \$150)

Total \$3100

### Other budget software titles include:

- Ready, Set, Go! ..... \$300
- Silicon Beach Personal Press ..... \$450
- Adobe Font pack ..... \$150

### Mac Classic Advantages

- 70dpi screen display with screen-rolloff for best WYSIWYG representation of on-screen options
- Fast open-level typography substitutes
- Large selection of DTP software, fonts and training
- Most color output options
- Easiest to learn and use
- Publish It Easy is intuitive on assembly language for operators, good, and uses MacDraw's 1800 Kilo Award for best page-design program
- Publish It or Design! prints with near-letter quality
- All Mac programs can generate PostScript output on disk

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## DESKTOP PUBLISHING

## Mac Classic Disadvantages

- Color display not available on Mac Classic
- No expansion slot except RAM upgrade (4MB maximum)
- Not a laser printer (the IIx has very slow printing; limited paper handling; water-soluble ink. Deskjet has better paper handling, non-water ink, but still printers move quickly than a laser printer)
- IIx/IIc Classic is too slow for big jobs
- Watch screen, although very close, is too small for DTP tasks
- Large-screen monitor choices limited

## Atari Budget Systems

- 1040 STE computer, 2M/2M monitor, Megafile 2048B HD ..... \$1390
- 1042Laser 400 laser printer with RAM expansion for total 1.5MB ..... \$1350
- PageStream DTP software ..... \$295
- Typically, a 2400 baud modem for sending files to a service bureau for high-res or color output ..... \$450 (1750)
- Total \$3185**

## Other budget software titles include:

- EasyDraw ..... \$75
- Timesaver Desktop Publisher II software ..... \$125
- Calamus ..... \$275

Any of these programs could alternately use low-expensive edge printers:  
 • Canon B110e (300-dpi) or HP Deskjet 500 (300-dpi) printer ..... \$450-750

## Atari 1040STE Advantages

- PageStream can place MG, TIF and EPS images from file or PC object sources
- PageStream software has Postscript output-to-disk option (service bureau can output Postscript files at up to 3600 dpi)
- Good screen update speed due to enhanced graphics architecture, especially if "Quick DTP" program is used
- 7995 MS-DOS disk file compatibility
- Excellent clarity and stability of 640x400 monochrome (24-bit) screen display
- 4000 color capable computer (although 3600 dpi available in monochrome mode only)
- Scalable printer fonts
- Optional Mac and/or IBM resolution compatibility

## Atari 1040STE Disadvantages

- From hardware, software and service options (i.e., no high-pressure motivation)
- Limited number of fonts supplied with program
- Word handling of character styles such as italics, bold etc.
- Locking some typographical capabilities
- Micrograys (optional Postscript microprint) version currently available for IIx is not compatible with HP Laserjet or BubbleJet-type printers
- Some supplied PageStream fonts are poorly rendered
- Some lack "bake" to optimize print quality at 300-dpi or below

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## DESKTOP PUBLISHING

### Amiga Budget System

A typical Amiga-based desktop system might consist of:

- Amiga 500, 586MHz color monitor \$1300
- A2000 Harddisk and 2MB expansion RAM ..... \$500
- PageMaker 3.0 DTP software ..... \$150
- Canon B110c (60-40) or HP DeskJet (80-40) printer ..... \$550-\$750
- Optionally, a 2400 baud modem for sending files to a service bureau for high-res or color output. (add \$1150)

**Total \$3100**

Other budget software titles include:

- FlexScript (PostScript simulator) \$115
- Gold (DTP Professional Page 2) \$240
- Professional Draw 2.0 ..... \$295

Any of these programs could advantageously use inexpensive subject printers:

- HP DeskJet 500 ..... \$750
- 800-400 printer ..... \$750

### Amiga 500 Advantages

- Only budget system with full personal color separation abilities
- New version of PageMaker includes all features of later versions (above)
- And more, including process color separation and Adobe Type 1 font support
- Standard graphics interchange file format (EPS/ILBM) allows good level of resolution integration
- Reliable printer fonts
- Inexpensive PostScript software
- Graphics simulation option allows improved output quality
- Powerful true color/monitoring operating system responsiveness
- good selection of graphics software, fonts and magazines
- optional Mac and/or IBM emulation

### Amiga 500 Disadvantages

- some AmigaDOS commands require access CLI (command line interpreter) commands
- 13-inch monitor delivers in 640x400 resolution, non-flashing mode has some eye-pain risks
- slowest clock speed (3.5MHz)
- HP DeskJet subject printers may cause shaded areas to include banding, letters may appear less distinct than laser print quality
- slowest and lowest capacity hard disk of systems listed
- few service bureaus can directly support Amiga files, files must be sent to MS-DOS format disks (requires extra software such as CrossDOS or DOS-2-4DOS)

### Midrange Systems

**Midrange (\$3,000-\$7,000)**

- speed is the important factor
- All midrange systems include at least 2MB RAM and a 40MB hard drive
- In this range, all systems include a laser printer and color or true grayscale capability
- For computer programs, each system includes desktop DTP and graphics programs

### PC Midrange System

- 386DX-33 MHz computer with VGA monitor, 28.8Kb ps/20, 1024x768 resolution, 40MB hard drive ..... \$2000
- NEC ColorWrite 60 PostScript laser printer ..... \$2400
- Mouse, Windows 3.0 ..... \$200
- PageMaker 4.0 or Ventura 4.0 ..... \$600
- CorelDRAW 2.0 ..... \$500

**Total \$5700**

### 386DX Advantages

- Highest performance midrange color system (33 MHz) 640x480
- Highest resolution display
- Great cost advantage option
- Wide selection of fonts (if CorelDRAW is installed), hardware and software
- Largest number of expensive color and options
- Creative Letter PostScript printer
- Fonts and printing widely available
- Although Adobe Type Manager is not needed in print PageMaker files, it improves the screen font display substantially

### 386DX Disadvantages

- Higher resolution slow down screen refresh
- Standard Windows print spooler is slow
- 40MB hard disk is too small, easily
- Simultaneous use of multiple monitors not possible

### Options and Enhancements

- Additional 2MB RAM ..... \$150
- Adobe Type Manager (Plus) \$150
- Harddisk or flatbed scanner ..... \$250-\$1500
- Upgrade to larger hard disk \$400 up
- Upgrade to larger monitor \$1000 up
- 2400 baud 2-pin modem with 4800 baud serial cables for sending files or proofs to a service bureau for high-resolution or color output ..... \$200

### Mac Midrange System

- Mac LC, 2MB RAM/2MB HD \$1500
- 12-inch grayscale or RGB color monitor ..... \$400/\$500
- NEC ColorWrite 60 PostScript laser printer ..... \$2400
- DTP software (choose one) ..... \$150
- TimesTen Publish-it Easy ..... \$270
- Silicon Beach Personal Press ..... \$450
- Adobe PageMaker ..... \$540
- Quark XPress ..... \$675
- Drawing Software (choose one)
- Adobe Illustrator 3.0 ..... \$500
- Adobe Freehand ..... \$500

**Approximate total \$7000**

### Mac LC Advantages

- 14MHz 64000 processor
- Creative Adobe PostScript printer
- Inexpensive color Monitors
- Inexpensive upgrade to 14-bit color (31.7K colors on 12-inch monitor)
- most color-inaccurate with upgrade
- Mac operating system supports several business multiple monitors

### Mac LC Disadvantages

- lowest screen resolution (640x480) of



- exchange options online higher cost. AppleLink 800-line access for compatible VGA display is substituted for Apple 12-inch color display, pushing \$499/800-resolution.
- screen (Quadra) and printer (Postscript) discrepancies may be improved, consistent with Adobe Type Manager software.
- Apple laser printer is not appropriate for high-volume printing.
- high-resolution midrange options.
- only cost expansion: dot, not compatible with Mac II NuBus cards.

#### Options and enhancements:

- Adobe Type Manager Plus fonts \$130
- Hardwood or Rubber screen \$750-\$2000
- Larger hard disk \$700 up
- Larger monitor \$1800 up
- 2800 baud Zoom modem with 4800 baud internal ability for sending files or proofs to a service bureau for high-resolution or color output... \$200

#### Atari Midrange System

- Mega 2 STE (5MB/500) \$1200
- Multitrac monitor/ColorScan interface... \$800
- Atari 5MB/600 laser printer \$1475
- Calamus (DTP software) \$400
- Calamus Outline (drawing software) \$425

**Total \$3400**

If Postscript output is required, no HP-compatible laser printer and PageRite may be substituted (see Atari's layout options, above).

#### Optional software:

- Calamus Font Editor \$125
- extra fonts \$50 up

#### Atari Mega STE Advantages

- Immediate package options.
- 10 MB/500/500 is faster than earlier Atari ST computers.
- Western laser printing of any option.
- Very good screen update speed.
- Flexible, integrated screen and printer fonts in Calamus.
- MS-DOS disk file compatibility.
- Calamus doesn't require Postscript to produce output from a printer. Any HP LaserJet-compatible extended font (such as that of the Atari 5MB/600, however, the IBM/600's output via the DMA port is much faster).
- Monitor can display 16 different combinations, with up to 4096 colors.
- Calamus Outline is roughly comparable to Postscript-based graphics programs for the file (i.e., Blower, FreeHand) on PC (Corel DRAW).
- optional file: file and IBM/PC or AT emulation.

#### Atari Mega STE Disadvantages

- Calamus does not currently support Postscript output.
- Calamus currently supports monochrome display only.
- greyscale (halftone) i.e., TIF) and color graphics not currently supported by Calamus.

- Limited image/art output options (In Visconquer, only Laser's Edge supports Calamus output in Laser or 800 dpi).
- Calamus' composition drawing program, Outline, tends to be a complex, command-driven program with powerful but not straightforward functions.
- Weak handling of character styles such as colors, bold, etc.
- Lack of text "kerning" means poor print quality of small point sizes at 300 dpi or lower resolutions.
- IBM/600 printer not supported by all programs, only usable on Atari computers.
- only cost expansion line slot.
- Fewer hardware, software and service options.

#### Options and Enhancements:

- MegaGraph hard scanner \$600
- Upgrade to 80MB hard disk \$400 up
- Upgrade to 4MB RAM \$300
- 2400 baud Zoom modem with 4800 baud serial ability for sending files or proofs to a service bureau for high-resolution or color output... \$200
- Optionally, an Atari Mega 2 or 4 computer could be substituted for Mega STE (subtract cost of Mega STE, add \$1200 or \$1800).

#### Atari Mega ST Advantages

- The Mega 1 or 4 adds an internal "Mega flash" memory device, in turn, allows several other options.
- A 15- or 20-inch Multitrac (monochrome) or Image Systems (color) monitor can attach through the Mega Plus for 1280x800 resolution.
- MegaTalk software for Macintosh 5000 models for AppleLink peripheral use.
- PPU (floating point unit) option.
- 48000 "80387 upgrade" option.

#### Atari Mega ST Disadvantages

- only one "Mega bus" expansion slot.
- 3 MB/s system clock, makes upgrading options costly.

#### Amiga Midrange System

- Amiga 2000HD (2MB RAM, 50MB hard disk) \$2750
- Multitrac monitor, A2000 display unit \$1650
- Gold Disk Professional Page 2 \$1430
- Gold Disk Professional Draw 2 \$1285
- HP LaserJet II printer \$1400
- extra RAM \$100 up

**Total \$4145**

#### Amiga 2000 Advantages

- Exceptional system with Amiga and IBM slots.
- The draw/scan eliminates scanning interface filter in laser mode.
- IBM slots allow access to unexpensive PC peripherals.
- ProPage 2 Compage graphics makes fonts print smoothly at up to 600 on non-Postscript printers.
- Pro Draw allows blends, better curves and other vector graphic enhancements that will print at the maximum resolution of the output device.
- Atmos interprocess communication



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## DESKTOP PUBLISHING

system is used by many Amiga programs to enhance multitasking.  
• optional Mac Plus and Pro modules

### Amiga 2000 Disadvantages

- 317 (unsplit) DIP does not include PostScript, although cartridges from Adobe and others are available (\$35-\$400 each) (1 MB RAM required)
- Lowest clock speed of "mid-range" priced systems
- "Intelligence" IBM compatibility options cost as much as some PCs
- Limited selection of Compaqware there included with Pro Plus, extra are costly

### Options and Enhancements

- 2400 baud modem with serials utilities for sending file or photo to a serial business for high-resolution or color output \$200
- Majestic hard scanner \$500
- All upgraded to allow access to PCAT cards and software
- Amiga 2500, 3500 or an accelerator card with a 68020 or (possibly) a 68030 CPU. One of the above-mentioned disadvantages is the slow clock speed of a standard Amiga 2000, it definitely makes sense to step up the computer
- Fast RAM \$1500

An Amiga with plenty of RAM is a happy Amiga. Aside from the small worry of compatibility it's not hard—almost "fast RAM" on Amiga performs—there's no

need for more than the minimum amount of chip RAM. Unfortunately, you just can't software chipsets across the fast chip RAM. The motherboard of the computer has to be modified.

There are several generations of the Amiga's AGNUS chip which governs the system's readable "chip RAM." With the old Amiga 1000 and early 1000 and 2000 models you need 128K AGNUS, the most advanced a year ago, Amiga 3500 and 2500 started shipping with a 1 MB SUPERS FAST AGNUS, although recently available as an Amiga 940 if you bought a memory expansion and performed some circuit-board surgery, now with the AGNUS, it's a 2 MB ORGAG AGNUS, although stock AGNUS comes configured in 1 MB of chip RAM and 1 MB of fast RAM. It's all very confusing, but the more chip RAM, the better.

### Midrange Systems Conclusion

If you feel about PostScript (I recommend a serial interface) photographic solution for DTP) will influence your choice of printer. PostScript costs about \$1000 to the cost of your system, but as you may detect, only PC and Mac-based DTP systems can really take full advantage of the facilities PostScript offers. Therefore, I subsequently recommend a Mac-based PC or a color-capable Mac if you intend on using a PostScript printer in outputting files at higher resolutions at a screen format. In the midrange, it becomes clear that the PC offers the best price/performance ratio, while the Mac has more advanced support for color display and output.

### High-end Systems

When we start discussing high-end, high-powered "big sky's the limit." There's no denying a faster printer with higher resolution, or a bigger monitor with more colors. Because, as we have seen, \$5000 already buys you a pretty fast machine, let's explore the \$10, to \$15,000 market as means of what is most important and leave it at that for now.

- If you may be hiring other people to do DTP work, consider that PageMaker is the most popular and well-known DTP program. Conversely, learning PageMaker gives you the most marketable skill. Ventura Publisher is the second most popular file, with Quark XPress a distant third, followed by—anything, really, unless you start including graphics-capable word processors like WordPerfect 5.1 or Microsoft Word. For this reason, even low-end system purchasers should at least consider upgrading for one of the "big name" programs.
- Use the highest-quality frame and clip art. I'm going to go on on a limb here and recommend that you stick to Adobe fonts, only because they're the ones that every serious business has, and it's less likely to be compatible with. Chicago fonts are easily recognizable, and will print you in a second-rate designer. Don't fall for it.

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## DESKTOP PUBLISHING

a lot of time scrolling up and down the page, or scrolling in and out to see the screen across on your work. While programs such as Berkeley Systems' *Shipping Out II* can help by scrolling the screen up or down, small-screen DTP are still quickly finding a larger screen a necessity. But what kind?

### Monitor Choices

Full-page displays, dual-page displays, grayscale, 24-bit color, 32-bit color... what? An uninitiated reader, the clarity of the screen is of utmost importance. On most color monitors, this is expressed by the "dot pitch." The 32-bit monitor I use, for example, has a .25 dot pitch (and I paid dearly for it). Cheapo monitors go all the way up to .45 dot pitch. I recommend that if you decide to go for color, you get at least a .30 dot pitch monitor.

If you are going to be working exclusively in black and white, you can get away with one-megabyte monitors, but I recommend that you get a grayscale monitor with at least 16 shades, and preferably 256 shades of gray. (Note that most Windows users haven't had a separate 256-shade or color on-screen, even though your video card might be capable of it.)

Aggravated in color monitors is rare, if you place on selling a monitor or wanted grayscale images in your documents. You would also want one of your

documents include process or spot colors or tints, such as might be needed with a drawing program. On black and white screens, sometimes light text disappears completely, and grayscale images are expressed by ugly dithered patterns that can make editing difficult or impossible.

At a different level, the segment applies to 15-in versus 17-in displays, 640 vs. 800, or you may have, versus 256 colors. 24-bit color allows millions of colors on-screen. With thousands of colors, images take on a photo-realistic depth, color blends are completely smooth, and all colors mix represented without dithering. To effectively edit several color images — such as we do for the book cover at *The Computer Paper*, for example — you need a 24-bit display.

Unfortunately, 24-bit displays have more overhead information (more stored on the screen, and as a result, 24-bit video tends to be noticeably sluggish, unless you use a card with an on-board graphics accelerator. Many Mac users now offer this, but on the desktop, there are only three 24-bit cards for the PC that I know of: (from Hercules, BooterOps and TrueVision), and only the Hercules offers integrated acceleration. (As of this writing, a driver for Windows is not available, hence, the card can't currently display 24-bit graphics in Windows applications. Look for Hercules to ship a true color Windows driver in the first quarter of 1991.) The Hercules Graphics/Status Card has the USB-400.

If you require display 1024x768 in 24-bit color, the BooterOps H24000 goes for a whopping \$4,595. That's the video card only, \$645. The monitor's about another \$4,000 on top of that! Most PC users should consider the next progression of cards to arrive. Mac owners, on the other hand, can't help 24-bit: the video card for 15-inch monitors can be had for as little as \$250.00.

If you presently work on single pages at 640x480 format, you would do well to consider a portable-format, "full-page display" monitor, one that can display a full page at 100% size when you view it. Similarly, if you usually work on dual-page spreads, such as might be desirable magazine or book publishing, get a dual-page display. As you might expect, black and white monitors are less expensive, but as before, I recommend at least a grayscale display if possible.

### What About Output?

Most desktop publishing is, ultimately, about desktop publishing's end result. Higher-resolution output, whether on a better-than-300-dpi printer or from your local service bureau's megapixel at best thing that can happen in your pages. Happy publishing!

Thanks to Mark Vance of Ayle Computer, Ron Grand of GDS Systems and Mike Mann of Carol Computers for their contributions to this article.

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How to  
Buy a

# Laser Printer



## By Carolee Benoit Picking a Printer

Many considerations will affect your final choice of a printer.

- **Image quality:** Black-writing or white-writing?
- **Printing speed:** How many pages per minute? What is the processor and speed of the printer's controller?
- **How many pages:** Do you need to print per minute? How long will it last?
- **How easy to use:** Can you add a hard disk? Can it be networked?
- **How much memory:** Is it expandable? Can you upgrade it yourself?
- **What protocols does it use?** Should you use parallel, serial or AppleTalk?
- **PostScript, PCL, language, etc.:** Is it a page-oriented or a page-description language? What reason of each language? Are there any bugs in the implementation? What does it do in the "down" lane?
- **What print resolution?** Can it be upgraded?
- **Does it come with software:** For the computer and applications you need to use?
- **Paper handling:** Can it handle heavy stocks, envelopes? How many sheets per paper tray? How many trays?
- **Operating cost and cost (per available copy of commercial):** Can they be recycled?
- **Warranty, service, etc.**

Because this article must necessarily summarize a much larger amount of specifications, featured figures (I try to answer these questions generally by answering the common to use, rather than giving you mind-numbing of a thousand and one specific models. For more info (and the alluring samples of print quality), refer to PC Magazine's Nov. 14, 1989 and Nov. 13, 1990 issues, where over a hundred models are compared.

Basically speaking, most page printers fall into one of two categories: 4-in-5 page (page-per-minute) light-duty personal use models, and letter-size 6-in-5 page-per-minute business models. In each of these categories, there are printers that are compatible with the Hewlett-Packard LaserJet family printers, and some are even more than are compatible with Adobe's PostScript language.

HP and compatible printers are typically found in office environments performing word processing and other tasks.

graphics-intensive tasks, while the graphics and font writing/translation abilities of PostScript printers are best represented in some like desktop publishing.

Typically, HP and compatible printers will have 1MB of RAM and a limited selection of internal hard drives (both optionally expandable). Most (but not all) HP-compatible units can accept HP soft fonts, and HP's proprietary font cartridge (which PostScript printers usually have) 1 MB of RAM and 10 available fonts.

Some higher-end PostScript printers also include a SCSI port, which allows a hard disk with additional font contents to be attached to greatly speed printing and reduce network congestion by eliminating the need to download fonts.

Some of the same printers utilize a RISC (reduced instruction set computer) chip in their processor. Typically offering much better performance than standard processors (PostScript printers are usually based on a Motorola 68000 or its chip), you can expect to see more RISC-based printers in the future.

## PostScript Clones

Most HP-compatible printers feature an acceptable imitation of HP's PCL printer command language, but it has many quirks that most PostScript clones are more trouble than they're worth. In particular, Microsoft/Apple's TrueType PostScript imitator seems to create difficult images for desktop laser Adobe laserprinters, and, in general, in our tests, to be my poor at printing complex PostScript graphics correctly—if at all.

We also tested NewGen's PostScript-compatible printers and while much better than TrueType, we still found some incompatibilities.

Several PostScript emulators are available for 80486 printers. These include clones such as JetPage and PostPage, and genuine PostScript of Intrepid.com, Adobe and HP themselves. In comparative speed and quality tests, the only clone I saw in JetPage.

PostScript PCL Revision 4 was the widespread Photopage PostScript clone, which is a credible emulation, although some reservations exist in rendering of PostScript graphics. (Review of earlier PostPage versions, which

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required more printer RAM, yet was much slower.)

In performance tests in the Jan. 1990 issue of *Personal Publishing magazine*, PacificPage beat almost as well as the genuine PostScript cartridges from HP and Adobe. Interestingly, the article concluded that even the fastest cartridge (from Adobe) was over twice as slow as the QMS PS-416—a real PostScript printer.

The new Adobe laser cartridge for the forthcoming cost of genuine Adobe

PostScript, was PostScript printers have become much more affordable, and there is less reason for printer manufacturers or consumers to fret over the benefits of PostScript clones.

My advice: If PostScript graphics are important to you, avoid printers using the Macintosh-based PostScriptingpage interpreter.

#### Disk-based Clones

Some disk-based PostScript clones, such as Image's UltraScript (available for IBM, Atari ST and Mac) or the PC ver-

sion as also marketed by Roland as RemScript) consist of thin-line laser-like Adobe's Type 1 fonts or certain types of complex graphics. The Mac version of UltraScript, although advertised as being "Type 1 compatible," forces you to convert Type 1 fonts into proprietary formats, which make them taking a long time to convert, leads to a maintenance where you have to keep two copies of all your printer fonts on your drive if you use Adobe Type Manager for on-screen rendering.

A PostScript emulator for the Amiga called PostScript is likewise capable to print Type 1 fonts.

Of the disk-based PostScript clones, GAG's Breakout of the Press (for IBM or Mac) downloads Type 1 fonts properly, and supports for the fonts used by personal "Light" version is available at a reasonably priced price.

My advice: avoid software bundles and go with any printer that has at least the option of the Adobe PostScript.

If you already have an HP printer and want the maximum use of PostScript fonts, consider using Adobe Type Manager, which will allow Windows (or Mac) applications to utilize available native PostScript fonts without the performance penalties and hassles of disk-based PostScript interpreters.

#### Memory

If you are planning on producing full pages of graphics with an HP-compatible printer, you will need to expand the printer's RAM to 1 MB or higher. This is because the entire page of 300-dpi graphics must be loaded into the printer before the page can be printed and ejected.

Obviously, an 8.5 by 11-inch page of graphics requires a lot more than 1 MB RAM. The only solution to printing graphics on a printer with less memory is to reduce the image size to resolution. Printer driver software often has options for printing at 300, or even 75, dpi.

On the other hand, a full page of text using the printer's internal fonts can be printed without expanding the printer's RAM because the printer does not have to create a bitmap of the image as its memory. Users utilizing character-based applications may be able to get away without expanded RAM; however, as the day of Windows and other graphical applications, most users will rapidly exceed the limitations of a printer with only 512K.

Many PostScript printers include an AppleTalk port to facilitate sharing the printer between several Macintosh (or other) computers on a network. All printers except those manufactured by Apple typically feature a Centronics parallel interface, which allows faster printing than the serial ports of the Macintosh. If a printer has both parallel and serial ports, you should get the best performance. Mac users should get an AppleTalk-equipped unit.

My advice: get a printer with a minimum of 1 MB RAM.

## Printer Engines

### Canon SX

The bones of every page printer is its imaging engine. One of the most popular types is the typically *laser* (laser-engineered) Canon SX engine, used in the Roland PostScript LaserJet II and III, Apple LaserWriter II, Brother HL-630 and HL-635 (the Brother units were named PC Adapter Edition's Canon), QMS PS-400 Turbo, NewGen TurboJet, DEC and in

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## LASER PRINTERS

THE COMPUTER MARKET MARCH '91 47

many other printers—all rather large units. (Of these, only the HP LaserJet has any kind of HP LaserJet PostScript, HP PCL, or HP LaserJet PCL/PostScript emulation.)

If you are planning on using a typical, rather than a large, printer (as on this list), you should consider that the Canon engine is the most popular type, largely due to the overwhelming dominance of the HP model.

One of the pluses of the Canon-based Ricoh and Canon LaserJet printers is the availability of many other enhancement products such as PostScript emulators and font cartridges. Few of them will work with other brands, but those that do automatically do so for Canon (S) engines.

The HP LaserJet II also has the distinction of having the highest print quality of any 300-dpi laser printer, due to its unique "resolution enhancement" technology that inserts the spaces in type of graphics by growing variable-width lines. The LaserJet II also boasts such features as "fontscaling" fonts and a unique Adobe PostScript option. About

100,000 copies of the Canon (S) engine feature an advanced cartridge for use and claim that make setup and maintenance easy. The paper path is only straight, in 300-dpi resolution. The Canon (S) also has a unique "fontscaling" feature that allows you to open the printer up, so you can manually insert it when changing paper paths.

Of course, not all models are available in 300 dpi. Some are available in 300 dpi, but not in 300 dpi. The Canon (S) also has a unique "fontscaling" feature that allows you to open the printer up, so you can manually insert it when changing paper paths.

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something in the order of \$200.

One particularly interesting Canon LaserJet printer is the QMS P4410. Ricoh-based with a unique Adobe PostScript and HP LaserJet PCL/PostScript emulation, it is the only one of the few printers on the market that can automatically convert the type of font being sent to it, and not in one path, but in multiple paths. (QMS calls this feature FontSmart Interchange Process, but we think the name is pretty much the same.) The QMS P4410 is especially suited to printing

graphics for use in word processing and spreadsheets.

Other printers with resolution enhancement capabilities include the Spectra Q-8010 and the Alpha LaserJet PCL/PostScript emulation.

Like Canon, emulators are a two-way affair. The Canon (S) engine can print quality. Used in the QMS P4410, it emulates the resolution of the Canon (S) engine, but not the resolution of the Canon (S) engine. The Canon (S) engine can print quality. Used in the QMS P4410, it emulates the resolution of the Canon (S) engine, but not the resolution of the Canon (S) engine.

"Shaping" printers such as the HP LaserJet II.

An older generation called QMS or HP was used in the earlier LaserJet and LaserJet II. The LaserJet II and LaserJet II also support the model, as well as the newer QMS and HP.

TRC  
Almost as popular as the Canon (S), the Apple LaserJet II (TRC) is also used in the Apple LaserJet II.

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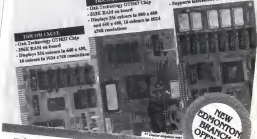
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## LASER PRINTERS

LaserScript, PostScript, Object PC 500, Postscript-Rite PPS500, Epson: EP1-6000, Minolta: Tally 500/1000, Desktop Systems: Laser Basic, Preview, Space Desktop Laser Fusion and many others. Of the TBC-based printers, only the Minolta-Tally 100 has a double-line facility. It also seems to be the best performance of TBC-based printers.

TBC engines use a system of separate tone cartridges, drum, and developer material in much less compact than the other two Canon systems. The engine

itself is rated for 300,000 printed sheets, with a maximum duty cycle of 4,000 pages per month. Average consumption cost per page is about US\$0.9 cents, not including paper.

The TBC's photoconductor drum is a separate, rotating cylinder during installation or maintenance immediately beyond the drum has a long life expectancy, rated at 10,000 pages. A replacement drum costs \$130.

The TBC engine creates black, cyan, and magenta and black, with an \$84 toner

cartridge typically having about 1,500 pages.

The TBC engine is characterized as having solid, consistent text and graphics appearing. The quality of the color reproduction is quite good, but the separate toner cartridges and photoconductor are an inconvenience.

#### OKI

Okidata printers use OKI's own LED array engine, which produces good-looking output. As an LED printer (a



non-light-emitting diode rather than a laser), it has fewer moving parts than a laser printer, and generally generated life span for the cheapest price.

The lowest Okidata 400 model is a colorizing the only printer listed here that can be bought now at a street price of less than \$25,000. It also has a silly sleep mode that locks it if it does not receive data for a few minutes. The fan slows down, greatly reducing the maintenance costs generated by the printer.

Unfortunately, the Okidata 400 has no PostScript option other than relatively slow and clumsy database software integration (see PostScript chapter, above). Also, the RAM expansion to 1.5MB is simply priced at \$200. Nonetheless, the Okidata 400 rated a PC Magazine "Best Buy" award in June 1990 issue.

#### Minolta

The 4-page Panasonic KX-4400 and Ricoh LP-600 laser printers are both manufactured by Minolta (a fact that Panasonic is a division), which explains why the Panasonic printer and engine bear the same model number. Both units feature superb output with crisp, dark text and black areas, use a system of separate drum and developer units, and toner will be able to help keep the cost of maintenance down, but tend to be noisy.

Similarly, the 11-page Panasonic KX-4440 Laser Printer printer is based around a Minolta engine with the same designation. The newest model, the ideal line KX-6440 (also available from Ricoh) is in the Ricoh LP-1100, Ricoh LaserJet II series line rather than that of the other LaserJet Plus.

Finally, the Panasonic KX-6440, and its Ricoh-based equivalent, the Ricoh LP-1170-PS, both open over Adobe PostScript, IBM ProPrinter, Space PE and Windows 3.0 emulators, as well as emulation of Panasonic and Ricoh LaserJet series printers (also Minolta products available from both companies). These 11-page printers look a straight-through paper path for heavy-weight paper or card stock.

#### Casio

Casio LCS 180 engine, used in the second-generation CopiLink II printers from Casio use a liquid-crystal absorber (LCA) electrophotography system used at 100% producing what Minolta magazine compared as "no other group and black." In our tests, we found that it generated generally good images with

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## The Best Paper for Lasers

The best laser papers have special electrical and electrostatic properties. Paper manufacturers can add chemicals to the paper's surface to reduce its electrical resistance, or sometimes mix them into the paper itself. The moisture content of the paper and environmental humidity also contribute to the paper's resistance, which can explain why your quality varies with the weather.

Another process called *hydrocoat* is a paper-finishing. This process also increases the surface of the paper, the more likely it is to coat, increasing the number of paper grains, flexible sheets and molecules. For best results, store your paper in a humidity room and take care to close the packaging on partial rolls.

Another factor that contributes to paper grain is the weight of the paper. Sheets that are too light or too heavy are more likely to jam. Some printers have weight-through paper paths which can handle somewhat heavier stock than those which maintain a direct route.

Most laser- and copy-type paper is rated at 80 pounds, although higher-quality bonds such as those used for letterheads are often rated at 90 pounds or more. Be sure to consult your printer's manual.

### Picking Paper

A good laser paper should have exceptional smoothness, brightness, opacity, and grain (surface irregularity). When I am evaluating paper types, I call on various paper suppliers and manufacturers.

All of the companies I spoke to were happy to send me sample lots, with a selection of their stock suitable for use with laser printers. (Typically, the sample sheets will have the brandname of the paper printed on it, so don't bother if you've just finished for free samples.) Of all those I tested, I liked *Hamamatsu Laser Plus* the best. (It also produces superior results on select printers such as the *Lexikon-Packard DesignJet*.)

Free-form-based papers such as *Hamamatsu Laser Plus* have two very different sides, and are extremely printable on one side only. The "wrong side" of *Hamamatsu Laser Plus* first light blue lettering on it to make differentiations easy. The printable side is extremely smooth and has a strong texture, contributing to its superior print quality. *Changping* is an excellent first made your printer, ensuring great quality and decreasing engine life.

Something that many people don't realize is that all papers have two distinctly different sides. The top is referred to as the *front side* and the bottom is called the *back side*. Always print on the side with the logo. Look for a label on the front of the wrapper for an easy understanding of the side and the correct side to place a new piece of paper. If you are printing on the "back" side of the paper, the printer will print the text upside down. (Some printers have paper tape up, some have down. Consult the printer manual.)



### Envelopes

Most paper printers can handle envelopes, but the kind of envelopes you choose will have a great deal to do with the results you get. For best results, use those with diagonal seams and rounded corners. It's also a good idea to make sure that the leading edge of the envelope has a sharp crease.

### Labels

Use labels specifically designed for use with laser printers. The photos on labels 200-dpi laser printers (compared to a grain through the label rollers and some labels designed for laser printers can't stand the pressure). The also applies to clear plastic, roll-out labels, rolls to those used on standard printers. Some brands are appropriate for laser printers or photo-copying, some are not. For example, a well-known manufacturer of laser-copyable labels produces.

### Letterheads

Free-form-based papers can almost always be successfully run through a paper printer, however, depending on the nature of the stock, the results may vary widely. Many companies use a type of paper called *direct feed* that does not take most assembly the paper is too smooth and produces poorly formed characters. Stocks that are glossy don't work well either, as the laser can't hit the smooth surface and make it take off.

Also, paper that has been pre-printed with thermographic "invisible" marks should not be used, as these will make the laser.

### Adding Color

If you want to add color to your laser-printed page, there are at least two possibilities that can do this relatively reasonably. Buy an *HP Laser Color Plus* and *Lexmark's Color* (the system operates as fundamentally the same feature: sheets of colored *Lexmark's Color* sheets are used to print your page, where they adhere only to the text and not the paper).

You can even cut up the sheets and use the colors on your page. Graphics supply stores should carry one or both of these products.

Of course, you can also add color to your page by simply printing on colored stock. Many other supply companies are now supplying a good selection of pre-printed formulas for each page printer.

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# Recycle & Save

**HOW TO SAVE MONEY  
AND STILL GET THE MOST  
OUT OF YOUR  
HEWLETT-PACKARD  
LASER PRINTER**

by Jay Sussner

Cartridges used by the HP laser printer are not cheap. One way to save money is to have them recycled. HP cartridges come with enough toner to do between

4,000 and 5,000 pages. The photoconductor drum, used to transfer the toner to the paper, has a useful life between 8,000 and 11,000 pages.

There are several ways to replenish the toner in the cartridges. It can be spent a moment at you try it yourself. Although it is not an easy task, it is usually inexpensive—about \$10 to \$15 for the toner of toner.

There have been ways to get your cartridge replenished to extend its cost and have a

professional do it. They start off by completely disassembling the cartridge and rebuilding it, rather than packing a toner in it and filling. Then, the photoconductor drum is inspected, made as clean as a new one and changed when replaced, the drum is cleaned and moving parts are lubricated. This service can cost \$20 to \$30, with a 100% warranty for 30 days from the date of purchase.

Refills can cost less than the rebuilt cartridges, but will not last as long. The remanufactured cartridge will produce about 30% more pages than the new

one and last longer than the new cartridge.

The HP LaserJet 1050 series 11 cartridges are only good for 1 or 2 refills, the main one for the HP 1050A. After that, the photoconductor drum loses its Organic Photoconductor Coating (OPC) and will no longer be able to print.

Most rebuilders will refuse to try that nearly half of all the drums they inspect have to be replaced. A few reputable rebuilders will replace the drum at its own, some charge as little as \$10 for a good used drum, and up to \$50 for a new one. Some rebuilders do not charge for this service, basing on the customer continuing to use the service.

Another company we spoke to is developing a lease or maintenance program.

You can also specify the color of the toner you want. Colored toner usually costs about \$50 more, depending on the color. In Canada to date, we only have black, brown and blue, red and yellow may be available in the near future.

Most rebuilders will warranty their work. If an HP laser printer requires service and an authorized HP service center states that the damage was caused by the toner of the cartridge, the rebuilder will in most cases pay for that service. This will be no way satisfy your HP warranty.

Most rebuilders will pay \$10 for your used cartridge if you replace it with the same cartridge and box with the experience card with the serial number. This should be done to prevent the highest cost getting to the drum, so light damage to the photoconductor properties. Pages should also be kept off the drum, so that will also cost quickly cheap.

Our thanks for the article in *3d Money*, who runs the "Jet" line, a cartridge rebuilding company in Richmond, B.C. Page 8 244-0247

## How a Laser Printer Works

by Christine Rowland

Like a desktop engine, page printers are built around a single engine drum, and rely on electrical charges to attract the toner to the drum and the paper.

### Of Black & White

Once you see the laser or other light source strike the surface of the drum corresponding to the image to be printed. These are called "toner-attract" systems. They typically use a good job with fine lines such as character sets, but are notorious for producing faded, streaked black areas. These defects in the original output usually aren't as serious as reproduction.

Many manufacturing engineers, such as the Canon 90 engine used in the HP LaserJet II and Apple LaserWriter II, produce significantly better blacks



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#### 82066-1280K VGA System

- 1MB RAM, 1280 x 1024 1/4" Floppy Drive
- 40MB 286 i386 Hard Disk
- VGA Color Monitor 1024x768, 2 lines
- 2840K VGA Graphics Card
- 101 Key Extended Keyboard
- Two Year Warranty on Computer & H/D
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#### 82066-1280K Super VGA System

- 1MB RAM, 1280 x 1024 1/4" Floppy Drive
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- 101 Key Extended Keyboard
- Two Year Parts/Labor Warranty

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#### 80086-1600K Super VGA System

- 1MB RAM, 1280 x 1024 1/4" Floppy Drive
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- 3420K VGA Graphics Card
- 101 Key Extended Keyboard
- Two Year Parts/Labor Warranty

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| OS                        | •  | •                                   | •  | •  | •  | •  | •  | •  |
| PC                        | •  | •                                   | •  | •  | •  | •  | •  | •  |
| Macintosh                 | •  | •                                   | •  | •  | •  | •  | •  | •  |
| Resolution 640 x 480      | •  | •                                   | •  | •  | •  | •  | •  | •  |
| Resolution 800 x 600      | •  | •                                   | •  | •  | •  | •  | •  | •  |
| Resolution 1024 x 768     | •  | •                                   | •  | •  | •  | •  | •  | •  |
| Resolution 1280 x 1024    | •  | •                                   | •  | •  | •  | •  | •  | •  |
| Resolution 1600 x 1200    | •  | •                                   | •  | •  | •  | •  | •  | •  |
| Resolution 2048 x 1536    | •  | •                                   | •  | •  | •  | •  | •  | •  |
| Resolution 2560 x 2048    | •  | •                                   | •  | •  | •  | •  | •  | •  |
| Resolution 3200 x 2400    | •  | •                                   | •  | •  | •  | •  | •  | •  |
| Resolution 3840 x 2880    | •  | •                                   | •  | •  | •  | •  | •  | •  |
| Resolution 4480 x 3360    | •  | •                                   | •  | •  | •  | •  | •  | •  |
| Resolution 5120 x 3840    | •  | •                                   | •  | •  | •  | •  | •  | •  |
| Resolution 5760 x 4320    | •  | •                                   | •  | •  | •  | •  | •  | •  |
| Resolution 6400 x 4800    | •  | •                                   | •  | •  | •  | •  | •  | •  |
| Resolution 7168 x 5376    | •  | •                                   | •  | •  | •  | •  | •  | •  |
| Resolution 7936 x 5952    | •  | •                                   | •  | •  | •  | •  | •  | •  |
| Resolution 8704 x 6528    | •  | •                                   | •  | •  | •  | •  | •  | •  |
| Resolution 9472 x 7104    | •  | •                                   | •  | •  | •  | •  | •  | •  |
| Resolution 10240 x 7680   | •  | •                                   | •  | •  | •  | •  | •  | •  |
| Resolution 11008 x 8256   | •  | •                                   | •  | •  | •  | •  | •  | •  |
| Resolution 11776 x 8832   | •  | •                                   | •  | •  | •  | •  | •  | •  |
| Resolution 12544 x 9408   | •  | •                                   | •  | •  | •  | •  | •  | •  |
| Resolution 13312 x 9984   | •  | •                                   | •  | •  | •  | •  | •  | •  |
| Resolution 14080 x 10560  | •  | •                                   | •  | •  | •  | •  | •  | •  |
| Resolution 14848 x 11136  | •  | •                                   | •  | •  | •  | •  | •  | •  |
| Resolution 15616 x 11712  | •  | •                                   | •  | •  | •  | •  | •  | •  |
| Resolution 16384 x 12288  | •  | •                                   | •  | •  | •  | •  | •  | •  |
| Resolution 17152 x 12864  | •  | •                                   | •  | •  | •  | •  | •  | •  |
| Resolution 17920 x 13440  | •  | •                                   | •  | •  | •  | •  | •  | •  |
| Resolution 18688 x 14016  | •  | •                                   | •  | •  | •  | •  | •  | •  |
| Resolution 19456 x 14592  | •  | •                                   | •  | •  | •  | •  | •  | •  |
| Resolution 20224 x 15168  | •  | •                                   | •  | •  | •  | •  | •  | •  |
| Resolution 21000 x 15750  | •  | •                                   | •  | •  | •  | •  | •  | •  |
| Resolution 21776 x 16320  | •  | •                                   | •  | •  | •  | •  | •  | •  |
| Resolution 22552 x 16896  | •  | •                                   | •  | •  | •  | •  | •  | •  |
| Resolution 23328 x 17472  | •  | •                                   | •  | •  | •  | •  | •  | •  |
| Resolution 24104 x 18048  | •  | •                                   | •  | •  | •  | •  | •  | •  |
| Resolution 24880 x 18624  | •  | •                                   | •  | •  | •  | •  | •  | •  |
| Resolution 25656 x 19200  | •  | •                                   | •  | •  | •  | •  | •  | •  |
| Resolution 26432 x 19776  | •  | •                                   | •  | •  | •  | •  | •  | •  |
| Resolution 27208 x 20352  | •  | •                                   | •  | •  | •  | •  | •  | •  |
| Resolution 27984 x 20928  | •  | •                                   | •  | •  | •  | •  | •  | •  |
| Resolution 28760 x 21504  | •  | •                                   | •  | •  | •  | •  | •  | •  |
| Resolution 29536 x 22080  | •  | •                                   | •  | •  | •  | •  | •  | •  |
| Resolution 30312 x 22656  | •  | •                                   | •  | •  | •  | •  | •  | •  |
| Resolution 31088 x 23232  | •  | •                                   | •  | •  | •  | •  | •  | •  |
| Resolution 31864 x 23808  | •  | •                                   | •  | •  | •  | •  | •  | •  |
| Resolution 32640 x 24384  | •  | •                                   | •  | •  | •  | •  | •  | •  |
| Resolution 33416 x 24960  | •  | •                                   | •  | •  | •  | •  | •  | •  |
| Resolution 34192 x 25536  | •  | •                                   | •  | •  | •  | •  | •  | •  |
| Resolution 34968 x 26112  | •  | •                                   | •  | •  | •  | •  | •  | •  |
| Resolution 35744 x 26688  | •  | •                                   | •  | •  | •  | •  | •  | •  |
| Resolution 36520 x 27264  | •  | •                                   | •  | •  | •  | •  | •  | •  |
| Resolution 37296 x 27840  | •  | •                                   | •  | •  | •  | •  | •  | •  |
| Resolution 38072 x 28416  | •  | •                                   | •  | •  | •  | •  | •  | •  |
| Resolution 38848 x 28992  | •  | •                                   | •  | •  | •  | •  | •  | •  |
| Resolution 39624 x 29568  | •  | •                                   | •  | •  | •  | •  | •  | •  |
| Resolution 40400 x 30144  | •  | •                                   | •  | •  | •  | •  | •  | •  |
| Resolution 41176 x 30720  | •  | •                                   | •  | •  | •  | •  | •  | •  |
| Resolution 41952 x 31296  | •  | •                                   | •  | •  | •  | •  | •  | •  |
| Resolution 42728 x 31872  | •  | •                                   | •  | •  | •  | •  | •  | •  |
| Resolution 43504 x 32448  | •  | •                                   | •  | •  | •  | •  | •  | •  |
| Resolution 44280 x 33024  | •  | •                                   | •  | •  | •  | •  | •  | •  |
| Resolution 45056 x 33600  | •  | •                                   | •  | •  | •  | •  | •  | •  |
| Resolution 45832 x 34176  | •  | •                                   | •  | •  | •  | •  | •  | •  |
| Resolution 46608 x 34752  | •  | •                                   | •  | •  | •  | •  | •  | •  |
| Resolution 47384 x 35328  | •  | •                                   | •  | •  | •  | •  | •  | •  |
| Resolution 48160 x 35904  | •  | •                                   | •  | •  | •  | •  | •  | •  |
| Resolution 48936 x 36480  | •  | •                                   | •  | •  | •  | •  | •  | •  |
| Resolution 49712 x 37056  | •  | •                                   | •  | •  | •  | •  | •  | •  |
| Resolution 50488 x 37632  | •  | •                                   | •  | •  | •  | •  | •  | •  |
| Resolution 51264 x 38208  | •  | •                                   | •  | •  | •  | •  | •  | •  |
| Resolution 52040 x 38784  | •  | •                                   | •  | •  | •  | •  | •  | •  |
| Resolution 52816 x 39360  | •  | •                                   | •  | •  | •  | •  | •  | •  |
| Resolution 53592 x 39936  | •  | •                                   | •  | •  | •  | •  | •  | •  |
| Resolution 54368 x 40512  | •  | •                                   | •  | •  | •  | •  | •  | •  |
| Resolution 55144 x 41088  | •  | •                                   | •  | •  | •  | •  | •  | •  |
| Resolution 55920 x 41664  | •  | •                                   | •  | •  | •  | •  | •  | •  |
| Resolution 56696 x 42240  | •  | •                                   | •  | •  | •  | •  | •  | •  |
| Resolution 57472 x 42816  | •  | •                                   | •  | •  | •  | •  | •  | •  |
| Resolution 58248 x 43392  | •  | •                                   | •  | •  | •  | •  | •  | •  |
| Resolution 59024 x 43968  | •  | •                                   | •  | •  | •  | •  | •  | •  |
| Resolution 59800 x 44544  | •  | •                                   | •  | •  | •  | •  | •  | •  |
| Resolution 60576 x 45120  | •  | •                                   | •  | •  | •  | •  | •  | •  |
| Resolution 61352 x 45696  | •  | •                                   | •  | •  | •  | •  | •  | •  |
| Resolution 62128 x 46272  | •  | •                                   | •  | •  | •  | •  | •  | •  |
| Resolution 62904 x 46848  | •  | •                                   | •  | •  | •  | •  | •  | •  |
| Resolution 63680 x 47424  | •  | •                                   | •  | •  | •  | •  | •  | •  |
| Resolution 64456 x 48000  | •  | •                                   | •  | •  | •  | •  | •  | •  |
| Resolution 65232 x 48576  | •  | •                                   | •  | •  | •  | •  | •  | •  |
| Resolution 66008 x 49152  | •  | •                                   | •  | •  | •  | •  | •  | •  |
| Resolution 66784 x 49728  | •  | •                                   | •  | •  | •  | •  | •  | •  |
| Resolution 67560 x 50304  | •  | •                                   | •  | •  | •  | •  | •  | •  |
| Resolution 68336 x 50880  | •  | •                                   | •  | •  | •  | •  | •  | •  |
| Resolution 69112 x 51456  | •  | •                                   | •  | •  | •  | •  | •  | •  |
| Resolution 69888 x 52032  | •  | •                                   | •  | •  | •  | •  | •  | •  |
| Resolution 70664 x 52608  | •  | •                                   | •  | •  | •  | •  | •  | •  |
| Resolution 71440 x 53184  | •  | •                                   | •  | •  | •  | •  | •  | •  |
| Resolution 72216 x 53760  | •  | •                                   | •  | •  | •  | •  | •  | •  |
| Resolution 72992 x 54336  | •  | •                                   | •  | •  | •  | •  | •  | •  |
| Resolution 73768 x 54912  | •  | •                                   | •  | •  | •  | •  | •  | •  |
| Resolution 74544 x 55488  | •  | •                                   | •  | •  | •  | •  | •  | •  |
| Resolution 75320 x 56064  | •  | •                                   | •  | •  | •  | •  | •  | •  |
| Resolution 76096 x 56640  | •  | •                                   | •  | •  | •  | •  | •  | •  |
| Resolution 76872 x 57216  | •  | •                                   | •  | •  | •  | •  | •  | •  |
| Resolution 77648 x 57792  | •  | •                                   | •  | •  | •  | •  | •  | •  |
| Resolution 78424 x 58368  | •  | •                                   | •  | •  | •  | •  | •  | •  |
| Resolution 79200 x 58944  | •  | •                                   | •  | •  | •  | •  | •  | •  |
| Resolution 79976 x 59520  | •  | •                                   | •  | •  | •  | •  | •  | •  |
| Resolution 80752 x 60096  | •  | •                                   | •  | •  | •  | •  | •  | •  |
| Resolution 81528 x 60672  | •  | •                                   | •  | •  | •  | •  | •  | •  |
| Resolution 82304 x 61248  | •  | •                                   | •  | •  | •  | •  | •  | •  |
| Resolution 83080 x 61824  | •  | •                                   | •  | •  | •  | •  | •  | •  |
| Resolution 83856 x 62400  | •  | •                                   | •  | •  | •  | •  | •  | •  |
| Resolution 84632 x 62976  | •  | •                                   | •  | •  | •  | •  | •  | •  |
| Resolution 85408 x 63552  | •  | •                                   | •  | •  | •  | •  | •  | •  |
| Resolution 86184 x 64128  | •  | •                                   | •  | •  | •  | •  | •  | •  |
| Resolution 86960 x 64704  | •  | •                                   | •  | •  | •  | •  | •  | •  |
| Resolution 87736 x 65280  | •  | •                                   | •  | •  | •  | •  | •  | •  |
| Resolution 88512 x 65856  | •  | •                                   | •  | •  | •  | •  | •  | •  |
| Resolution 89288 x 66432  | •  | •                                   | •  | •  | •  | •  | •  | •  |
| Resolution 90064 x 67008  | •  | •                                   | •  | •  | •  | •  | •  | •  |
| Resolution 90840 x 67584  | •  | •                                   | •  | •  | •  | •  | •  | •  |
| Resolution 91616 x 68160  | •  | •                                   | •  | •  | •  | •  | •  | •  |
| Resolution 92392 x 68736  | •  | •                                   | •  | •  | •  | •  | •  | •  |
| Resolution 93168 x 69312  | •  | •                                   | •  | •  | •  | •  | •  | •  |
| Resolution 93944 x 69888  | •  | •                                   | •  | •  | •  | •  | •  | •  |
| Resolution 94720 x 70464  | •  | •                                   | •  | •  | •  | •  | •  | •  |
| Resolution 95496 x 71040  | •  | •                                   | •  | •  | •  | •  | •  | •  |
| Resolution 96272 x 71616  | •  | •                                   | •  | •  | •  | •  | •  | •  |
| Resolution 97048 x 72192  | •  | •                                   | •  | •  | •  | •  | •  | •  |
| Resolution 97824 x 72768  | •  | •                                   | •  | •  | •  | •  | •  | •  |
| Resolution 98600 x 73344  | •  | •                                   | •  | •  | •  | •  | •  | •  |
| Resolution 99376 x 73920  | •  | •                                   | •  | •  | •  | •  | •  | •  |
| Resolution 100152 x 74496 | •  | •                                   | •  | •  | •  | •  | •  | •  |
| Resolution 100928 x 75072 | •  | •                                   | •  | •  | •  | •  | •  | •  |
| Resolution 101704 x 75648 | •  | •                                   | •  | •  | •  | •  | •  | •  |
| Resolution 102480 x 76224 | •  | •                                   | •  | •  | •  | •  | •  | •  |
| Resolution 103256 x 76800 | •  | •                                   | •  | •  | •  | •  | •  | •  |
| Resolution 104032 x 77376 | •  | •                                   | •  | •  | •  | •  | •  | •  |
| Resolution 104808 x 77952 | •  | •                                   | •  | •  | •  | •  | •  | •  |
| Resolution 105584 x 78528 | •  | •                                   | •  | •  | •  | •  | •  | •  |
| Resolution 106360 x 79104 | •  | •                                   | •  | •  | •  | •  | •  | •  |
| Resolution 107136 x 79680 | •  | •                                   | •  | •  | •  | •  | •  | •  |
| Resolution 107912 x 80256 | •  | •                                   | •  | •  | •  | •  | •  | •  |
| Resolution 108688 x 80832 | •  | •                                   | •  | •  | •  | •  | •  | •  |
| Resolution 109464 x 81408 | •  | •                                   | •  | •  | •  | •  | •  | •  |
| Resolution 110240 x 81984 | •  | •                                   | •  | •  | •  | •  | •  | •  |
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| Resolution 111792 x 83136 | •  | •                                   | •  | •  | •  | •  | •  | •  |
| Resolution 112568 x 83712 | •  | •                                   | •  | •  | •  | •  | •  | •  |
| Resolution 113344 x 84288 | •  | •                                   | •  | •  | •  | •  | •  | •  |
| Resolution 114120 x 84864 | •  | •                                   | •  | •  | •  | •  | •  | •  |
| Resolution 114896 x 85440 | •  | •                                   | •  | •  | •  | •  | •  | •  |
| Resolution 115672 x 86016 | •  | •                                   | •  | •  | •  | •  | •  | •  |
| Resolution 116448 x 86592 | •  | •                                   | •  | •  | •  | •  | •  | •  |
| Resolution 117224 x 87168 | •  | •                                   | •  | •  | •  | •  | •  | •  |
| Resolution 118000 x 87744 | •  | •                                   | •  | •  | •  | •  | •  | •  |
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## 4th Annual Survey of

# Canadian Payroll Software

by Jon Rowatt

Thirteen Canadian Payroll programs have been reviewed in this survey. New to the survey this year are Double Payroll, Emerge, Great Plains Canadian Payroll, PowerPay and System II.

The accompanying chart presents an attempt to compare costs, screens, features and options for the thirteen programs. Where information was not available, the cell contains a dash.

## Program Profiles

**ACCRAE PLUS** Canadian Payroll Version 3.1 provides for a combined total of 12 non-deduced earnings, variable benefits and up to 10 statutory deductions per employee. Additional flexibility is obtained by defining groups of earnings on which calculations can be performed. Deductions include the introduction of 3.15% rates per company. A General Ledger account can be associated with each code and earnings codes can be assigned to specific T4 boxes. General ledger accounts and departments are accumulated in a file for automatic transfer to the Accpac G/L, and salaries and wages can be distributed to general ledger departments. Earnings and deductions can be suppressed by entering a flag in the company file. Payroll deductions have been changed to conform to the new rates. The program pays automatically calculates the TDI cost of living adjustment but the user can and super-charge the UIC, CPP and tax tables. This flexible program is a good choice for businesses with simple and complex integrated deductions, perhaps requiring job costing and contribution to Accpac Plus G/L. The 12 earnings and deductions limit is beneficial for some payrolls.

**ADDERGUTY** Canadian Payroll may be set up and run on its interface with both Accpac Payroll and the Accpac Plus General Ledger. The product is the most suitable of the products in this review for a companies who contribute. It provides for up to five hourly related periods a number of different methods for the calculation of commissions. It has an extensive history of benefit and deduction codes for most deductions. Reporting adequate, however it does not print a record-of-employment form.

**EMERGE** is an sophisticated, single payroll solution for a small company. The set up will take only minutes and a history of the features of more flexible and expensive programs. Its pull-down menu and clear data entry screen are attractive features. A detailed employee

pay history report is provided and payroll entry posted checks can be record on the screen and modified even after posting.

**EMSTAT** is either one of the easy payrolls for use of the complex ones. The method it uses to define earnings requires a good understanding of the program's operation on the part of the user. The manual is well laid out and very easy to use.

**GRAND MASTER** is a good choice for those organizations requiring a extensive cost breakdown. The product's special features include the ability to associate each employee's earnings and deductions with his or her own General Ledger accounts and Department and further, the ability to generate an employee's wages broken up in 4 different companies or departments. This product provides tables for wage rates which is useful for inclusion in a union agreement. It is somewhat difficult to set up earnings and deductions and the manual is weak in dealing with this function. The product interfaces with Accpac, Grand Strategic, Platinum and a number of other General Ledger products.

**GREAT PLAINS CANADIAN PAYROLL** is a powerful, third-generation payroll program. Its most notable feature is the unlimited number of earnings, deductions and benefits listed in a way of which are preconfigured, which can be deleted and modified. It is one that the job costing program in a truck back that breaks and the company by job and company the company portion of the employee to the job and then automatic overtime calculations. It has built-in pension plan benefit and full union reporting. It does not provide the automatic calculation of hourly pay or net pay window in U.S. dollars. The program interface and can print an employee's entire pay history for the year. This and other useful tools are included. It interfaces with the Great Plains report generator for custom reports.

**HELP** payroll was not covered this year because the product is undergoing changes, but it is included in the survey as version 4.0 is being fully supported until the new product is shipped.

**POWERPAY** is available in a number of versions for different types of users. There is version II for Apple DOS 3.3, version III for Macintosh and payroll services, version IV for novices to users with additional hourly rates and union deduc-



notes, and version V4, which is the Quick-only. Employees bank account numbers can be entered for use for automatic deposits. There is an updating feature available to correct errors found after posting of the payroll, and a new change feature. The program also tracks up-to-date salary history. The change configuration is simple, clear and easy to set up. The pay statistics are excellent and the pay history retention is good. Benefits and deductions are easy to set up, a number code defines the pay type and a suffix differentiates the paid or deferred.

**PAYROLL-CONTROLLER IV** is included in the survey for the first time this year. It is a complete, flexible payroll product designed to interface with Real World, Aspen and Timberline accounting systems. The income and withholding tax modules of Real World, Income, benefits and deductions are totally new, designed not to mix the mix up in deductions. In products all the reports a business would require issued as records of employment and T4 and provides for a direct deposit interface.

**PAYMATE** is perfectly good for departmental costing and job costing. Paymate accepts set-up and to use. The pay is calculated as the time sheet is entered and can be entered on the screen for terms. This product will print a pay card which is a printout of all pay

details by payroll employees for any period of the year. Paymate is a complete personal system. There is a provision for the entry of personal information such as the benefit plan features selected, the data for salary history and an amount, a record to enter education and skills and a live loan screen which is user-definable. The user can prepare and defined reports from the personal database.

**POWERPAY** is a good simple payroll program at reasonable cost for a single company. The product is very easy to learn, the addition of employees is easy and the earnings and deductions and taxable benefits are easy to define. The flexibility in earnings, deductions and taxable benefit deductions is excellent. The program does not calculate unnecessary deductions or taxable benefits, they are simply entered by the operator. The product does not produce the T4 summary report or a record of employment form.

**AUCKLAND INTEGRATED ACCOUNTING** is included in the survey because it includes an employee payroll which is integrated with job costing and therefore very suitable for the small construction firm. The product tracks activities, does a time or pay card holding pay, and provides for a taxable benefit and other non-statutory deductions.

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## PAYROLL

## Conflicts of interest

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**Test and Training Materials:** *Test and training materials are provided either by the authors or as a first page add-on.*

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**"Anti-Cheating"** means that some people will never live and even be charged with a job and practice are impossible.

**Abstract**—The purpose of this study was to determine the effect of a 10-week training program on the heart rate (HR) and blood pressure (BP) of sedentary, middle-aged men. The subjects were divided into two groups: a control group and a training group. The training group performed a 10-week aerobic training program. The HR and BP were measured at baseline and at the end of the 10-week training program. The results showed that the training group had a significant decrease in HR and BP compared to the control group. The HR decreased from 72 to 68 beats per minute, and the BP decreased from 120/80 to 110/70 mmHg. The control group showed no significant change in HR and BP. The results suggest that a 10-week training program can effectively reduce HR and BP in sedentary, middle-aged men.

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results for the estimation of savings result in inconsistent estimates, and therefore, the results are based on simulations for the estimation.

**Abstract:** The authors propose a new model of the relationship between the individual and the social system. The model is based on the idea that the individual is a social being, and the social system is a system of social relations. The model is based on the idea that the individual is a social being, and the social system is a system of social relations. The model is based on the idea that the individual is a social being, and the social system is a system of social relations.

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## PAYROLL

Continued from page 30

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*John Harrell, BSc, CGA, is Managing Consultant for PC Professionals, a division of Harrell Consultants Ltd. The firm is a Vancouver-area computer consulting firm that specializes in the selection, installation of and staff training on Accounting Programs 604-252-9221.*

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## Payroll Services

by Kevin Singh, Editor

### Software Solutions May Not Always Be The Way To Go

In looking at the payroll alternatives available, you might want to consider a payroll consultant or a software package. Each route has advantages and disadvantages. Three primary considerations would be cost, data security and ease of use.

#### Cost

The cost of a payroll service is readily apparent, as that you will write a cheque each month for the service and pay an initial setup fee. Defining your total cost on an hourly software solution may not be as easy to define.

The entry fee for a payroll service usually covers initial employee information and monthly balancing payroll amounts. With an in-house payroll software package, you will face the up-front cost of the software, training the payroll employees, blank cheques and other printing, pay to update and most significantly, time spent during each pay period to accommodate the task of paying your employees. The indirect costs of payroll, which takes time away from a significant commitment when choosing payroll services.

#### Security

External Payroll security is another important issue. As computer users, we all know that information is a computer is only good if you can get it out. Data security is a very important issue when considering software. Payroll services claim to keep your payroll information backed up all the time.

Internal security is another security consideration to deal with the organization. Even people will have access to employee information if it is kept off site.

#### Ease of Use

Finally, ease of use is an important consideration. This decision obviously depends on which software package you choose, who will be administering the payroll program, or which payroll service bureau you select. With every change in your business regulations, it may be difficult to keep informed on the latest trends and regulations in payroll.

#### Choosing A Service

A great service is available, not only in types of payroll services offered, but also in the organizations offering the services. Before you talk to suppliers of these services, you should be aware of some of the choices with which you will be presented.



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| 11                  | \$154                     | \$0.00                     | 110                 | \$154                     | \$110.00                   |
| 12                  | \$154                     | \$0.00                     | 120                 | \$154                     | \$120.00                   |
| 13                  | \$154                     | \$0.00                     | 130                 | \$154                     | \$130.00                   |
| 14                  | \$154                     | \$0.00                     | 140                 | \$154                     | \$140.00                   |
| 15                  | \$154                     | \$0.00                     | 150                 | \$154                     | \$150.00                   |
| 16                  | \$154                     | \$0.00                     | 160                 | \$154                     | \$160.00                   |
| 17                  | \$154                     | \$0.00                     | 170                 | \$154                     | \$170.00                   |
| 18                  | \$154                     | \$0.00                     | 180                 | \$154                     | \$180.00                   |
| 19                  | \$154                     | \$0.00                     | 190                 | \$154                     | \$190.00                   |
| 20                  | \$154                     | \$0.00                     | 200                 | \$154                     | \$200.00                   |
| 21                  | \$154                     | \$0.00                     | 210                 | \$154                     | \$210.00                   |
| 22                  | \$154                     | \$0.00                     | 220                 | \$154                     | \$220.00                   |
| 23                  | \$154                     | \$0.00                     | 230                 | \$154                     | \$230.00                   |
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| 25                  | \$154                     | \$0.00                     | 250                 | \$154                     | \$250.00                   |
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- 1.2" 5.25" Floppy Drive
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- Mouse with 3-Button Buttons
- System Storage: 20 MB Hard Disk
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- Full size mouse and keyboard



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## CEX 386SX-16MHz

- Intel 386SX CPU, 16 MHz
- Cache RAM
- 1.44" 3.5" Floppy Drive
- 1.2" 5.25" Floppy Drive
- 24" Full Screen Color
- Mouse with 3-Button Buttons
- System Storage: 20 MB Hard Disk
- Super VGA Monitor: 1024 x 768 x 1 MB
- Full size mouse and keyboard

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## CEX 286 16MHz

- Intel 286SX CPU, 16 MHz
- Cache RAM
- 1.44" 3.5" Floppy Drive
- 1.2" 5.25" Floppy Drive
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- Mouse with 3-Button Buttons
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| 17" Color VGA Monitor (16M, 2M, 1M, 512K) + 4MB   | \$349 |
| 17" Color VGA Monitor (16M, 2M, 1M, 512K) + 8MB   | \$399 |
| 17" Color VGA Monitor (16M, 2M, 1M, 512K) + 16MB  | \$449 |
| 17" Color VGA Monitor (16M, 2M, 1M, 512K) + 32MB  | \$499 |
| 17" Color VGA Monitor (16M, 2M, 1M, 512K) + 64MB  | \$549 |
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- **KEYBOARDING** (16 hours over 8 days, \$125)



# ANOVATION

A Monthly Newsletter From



AND Office Automation

## THE SECRET TO SUCCESSFUL COMPUTING

W

hen the first truly personal computers were introduced a decade or so ago, many brave pioneers saw the PC as the power tool of all power tools. They wrote their own BASIC programs, and accepted the incompatibilities that came with being on the leading edge. Back then VisiCalc and Word star were the killer programs, and a new frontier was unfolding before our very eyes.

Now it's 1991 and those pioneer days are over. The front runners have taken on the challenges of OS/2, and Unix. Hardware and software of old now fills millions of closets and garages, or is being shipped off to distant Mac countries where technology is scarce.

Computer technology is now forcing its

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self into the desktops and into the homes of Canadians as never before. Where a PC was just another luxury, it is now a necessity. GST, free trade with the U.S., and the demands put on our offspring have pressured us into taking that final step, automation.

(Information page 2)

AFTER



By  
Todd  
Wm.  
Deahoff



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OFFICE IN  
SURREY, B.C.



## The Problem

Getting caught up in all the hoopla of buying a computer system is something everyone must contend with. MIPS, milliseconds, and GUIs mean more until they produce results.

Mapping out which level of technology would best suit your needs and what software would complement your office or home is only half the battle. The other half is giving the ability to use what you've for. Many organizations see the obvious fact that a computer is a business tool, and to a tool, a solid working knowledge is essential.

## The Solution

A major part of the automation process should include taking into account your training requirements. That's right, training. The most valuable component of any automated system is the user, not the hard drive, CPU, printer, or software.

Automation without proper training is a mistake which can cost. Properly outfitting yourself and/or your personnel with the skills to make a computer the productivity tool it was meant to be is the difference between successful computing and a waste of time and money.

Could you imagine hiring someone who had no knowledge of cars to do a tune up on the new family wagon?

## Cost/Benefit Analysis

On average, it takes six times longer to learn an application from scratch than it does with proper training. If someone could learn the same amount of information in a three day training program that would take

them after eighteen days of trial and error, the savings in time, wages, and frustration alone would make it worth while.

Let us take, for example, a secretary learning to use WordPerfect. The complete set of WordPerfect manuals alone is around 3" thick - not to mention the dozens of companion books available. If she were to sit and read through each page, and practice each function, she would prob-



bly end up being carried off in a little white van wearing a little white straight jacket.

Not to mention the fact that a trained professional can teach you the "insandouts". By learning how to utilize an application more effectively, tiresome tasks can be reduced to a few simple keystrokes.

Another area often overlooked is the mistake factor. As a rule, the learning method of Trial and Error usually ends with more errors. For example, someone without a thorough working knowledge of the system's capabilities, could enter in hundreds of stock items into an inventory management system, only to learn later that the countless hours of entry work were a waste of time due to consistent errors which could have been avoided with only a one- or two-day orientation session.

## Available Options

ANO Office Automation offers many different solutions to your training requirements. With classroom, on-site, and videotraining programs, there is a solution for every need.

For the first timer or the user looking to upgrade his or her skills, we offer evening and day time classroom courses on everything from ad-

desktop publishing to basic programming skills. Customized courses for the business specific needs can also be geared for a wide variety of applications. Some of the more popular include WordPerfect, Windows, ACCPAC, Lotus (Base, Excel for Windows, Novell Network, Ventana, and OS/2. These can be held either one-on-one in your office, or at our classroom facilities.

If you have a unique application with your own in-house expert, we also have available fully equipped classrooms for rent. Each classroom is designed so as to enhance the learning process.

## Bottom Line

Reading user manuals, and spending time (possibly long-distance dollars) on the software developer's support lines is not an admirable struggle. It is a costly and inefficient use of time, which no one can afford.

The fact of the matter is that training pays off. It improves morale, increases productivity, and saves time and money. Which is why you chose to automate in the first place.

Wasn't it?





# ZENITH REVITALIZED



**ZENITH**  
data systems



Groupe Bull

## Play Bull

The primary target markets for ZDS have historically been education, science, and government. ANO Office Automation, strong in those sectors, also excels in the business community where ZDS had been lacking.

ZDS complements

ANO's existing product lines well, with a rich variety of desktops, portables, and video display systems. The primary benefit to the end user is simple consistency. Whether on the road, or at the desk, users can count on Zenith's leading-edge products to offer superior performance, exacting craftsmanship, and comfort.

Tom Chan, General Manager of ANO's National Head Office in Richmond, exclaims that "A strong product line, fiscal stability, top-notch personnel and the right product line are key elements in any business. ZDS has them all."

We welcome Zenith Data Systems into the fold, and look forward to presenting their amazing line of personal computer products to our valued clients. We also wish Costas and the gang at ZDS-Vancouver the best of luck in their new facilities.



**I**n 1980, Zenith Data Systems (ZDS) was a rising young star on the personal computer horizon. Building a reputation based on innovative technology, the company experienced a massive growth pattern into the late '80s.

But how the tides of change sweep over us. By mid 1989, ZDS had gone from a leader in the personal computer industry to a mere also-ran. Products, such as the SupersPort and TurboPort became old technology. Primarily due to mismanagement by the parent company Zenith Electronics, ZDS began to feel the pinch as turmoil rumbled amongst the troops.

## Bull Saves The Day

In December of 1989 Zenith Data Systems was sold to Groupe Bull HN Information Systems, a subsidiary of Groupe Bull SA of Paris, France - a \$1.5 billion dollar corporation with more than 45,500 employees. Understanding the task at hand, ZDS management began a restructuring program which would take close to a year.

## Back In The Limelight

Part of Zenith's restructuring

included the revamping of its dealer base. By strategically locating a limited number of resellers in well-defined market areas, Zenith aimed at maximizing quality, responsiveness and dealer dedication to their product lines. Under the new Medallion Reseller Program, ZDS's task was a simple one - pick out the strongest and the best that were capable of playing in the big leagues.

ANO Office Automation, an authorized Zenith reseller and service centre for the past two years, was approached by ZDS to carry out the Medallion program through its offices across Canada.

"We gladly accepted."

"I think that the Groupe Bull acquisition of Zenith Data Systems is a step in the right direction. Just look at what Lee Iacocca did for Chrysler F," comments Todd Draboff, Manager of ANO's Corporate Systems Group.



## British Columbia Institute of Technology (BCIT)

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## AND Professional Training

| Date   | Course              | Course # | Durations | Fee    |
|--------|---------------------|----------|-----------|--------|
| Mar 11 | Venture Publishing  | 21630    | 4 wks     | \$ 161 |
| Mar 11 | ADCPAC A/P          | 21656    | 4 wks     | \$ 161 |
| Mar 12 | dBac IV Level 3     | 10360    | 4 wks     | \$ 161 |
| Mar 12 | Lotus 1-2-3 Level 2 | 10339    | 4 wks     | \$ 161 |
| Mar 14 | WordPerfect Level 2 | 10378    | 4 wks     | \$ 161 |
| Mar 14 | Lotus 1-2-3 Level 3 | 21045    | 4 wks     | \$ 161 |

| Date   | Course                    | Location | Fee    |
|--------|---------------------------|----------|--------|
| Mar 05 | Intro. to WordPerfect     | R        | \$ 165 |
| Mar 07 | Intro. to Microsoft/Works | R        | \$ 165 |
| Mar 09 | Intro. to MS DOS          | R/K/E    | Call   |
| Mar 12 | Intro. to MS DOS          | R        | \$ 165 |
| Mar 14 | Intro. to MS Word 5.0     | R        | \$ 165 |
| Mar 19 | Intro. to Lotus 1-2-3     | R        | \$ 165 |
| Mar 21 | Intro. to Windows 3.0     | R        | \$ 165 |
| Mar 23 | Intro. to WordPerfect     | R/K/E    | Call   |
| Mar 28 | WordPerfect 5.1 Level B   | R        | \$ 165 |

R = Richmond • K = Kelowna • E = Edmonton

Call BCIT at 434-3630 to register

Call your nearest AND office for further information

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drive rotate at an average  
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*Did  
You  
Know  
?*

Zenith was the first  
PC manufacturer  
to use cache memory



## TECH • TALK

HOW  
KEY AC

In past issues of *ANOVATION*, I have answered some common questions about personal computing. This month I will focus on getting the most out of ANO's Support Department and some tips on extending the lifespan of your system and avoiding problems.

### Technical Support

1. If at all possible, try to recreate the problem.
2. If it is a hardware problem, be sure to check that all the necessary cables are properly secured.
3. Some problems are caused by inadequate power conditioning. Wait for the problem to occur again, or plug the system into another outlet. Consider investing in a Tripp Lite or UPS power-conditioning system.
4. Have a copy of your invoice available, along with the brand and version numbers of your software applications. Should you need to bring a component in for repair, bring your invoice with you.
5. Be sure to review the manuals or supporting material which came along with your software and/or hardware. Often there is a "Troubleshooting" section in the manual that may be of assistance.
6. Keep your software as up-to-date as possible. Older applications are sometimes difficult to support.
7. Keep a log of all support calls and service requirements you may have needed.

### Avoiding Problems

1. Have your PC and printer tuned up at least once a year. Business users should consider a tune up about every six months since their systems are constantly running. Our service departments offer this service for a nominal fee.
2. Keep all equipment in temperature, well-ventilated rooms. Dirt and dust can play havoc with your system's components.
3. Practice safe computing. Avoid using pirated software, and be sure to install a virus protection utility like Macro Vaccine or Norton's Anti-Virus.
4. Back up your hard drive daily. A small invest-

ment in a tape backup system or diskette-based backup software could save you a lot of money in the long run.

Have fun, and practice safe computing.

Should you have any questions for Tech Talk, please feel free to send them to:

**ATTENTION: TECH TALK**  
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## Another page in printer history.



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# BEST OF BOTH WORLDS



As any dedicated reader of our beloved ANOVATION newsletter knows, AND Office Automation prides itself in offering the Canon line of Laser Beam printing

systems. However superior to the closest competition with its scalable fonts and impressive line of features, the biggest hurdle has been that the Canon is not HP Laserjet compatible.

What makes the Canon different isn't its print engine or the consumables it uses. In fact the existing line of Hewlett Packard Laserjet printers use the Canon SX engine, and the same EP cartridges. The primary difference is the print language. Canon uses its advanced CalPSL Language, where as the HP uses HP/PSL. Thus making the two completely incompatible.

Well, those days are over. Meet the Lasertwin 4.0 (software) and the HPCII Emulation Cartridge from Metro Software Inc., companion products which make the Canon LBP-4 Mark III and LBP-4 lasers, HP II compatible.

## Lasertwin 4.0

Lasertwin is a TSR utility program which monitors all output to the laser

printer. When it detects anything in the print stream that is specific to Laserjet printers, (such as PCL commands or downloaded soft fonts), it translates it to a Canon equivalent.

Additionally, an embedded text command language allows the end user to customize a print job. Included commands allow access to the LBP-4 and Mark III's scalable fonts. A spooler is also included so that you can continue working within your application while the print job is being processed.

## HPC II

If you're already running low on memory or are working within a non-DOS operating environment such as Unix or OS/2, Metro also offers its HPC I

emulation card. Simply insert the cartridge into Slot "A" on your Canon LBP-4 or Mark III, and you immediately have two printers in one.

This highly advanced emulation cartridge offers high speed and a cost-effective emulation for the world's most powerful and economical Laser Beam Printers.

Both Metro products are available through AND locations across Canada.





# AST Premium 386SX/16. For The Professional Power User.



Your best choice in a business computer is the AST Premium 386SX/16. That's because this is the first computer that actually combines the performance and software compatibility of an 80386™ computer with the price of a high-performance 80386 system.

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The AST Premium 386SX/16 also has an upgradable architecture called Copal-32™. With it, you can move up to the highest level of 86 processing: 65 or 33 MHz, or even to i486™ processing, when it's available.

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# ANOVATIONS

## PC-5700 Goes Big

Sharp is now shipping its 20MHz 386sx portable PC-5700 with an optional 120MB hard drive. Complementing an already impressive array of standard features, a 120MB hard drive will mean more than enough space for the portable power user.

## Lanistic Update

Artisoft's award winning LANtastic peer-to-peer network operating environment is now available with MicroChan-

nel network adapter cards. Previously, users resorted to the rather expensive option of buying third party MC Ethernet cards plus the Artisoft's NOS/AI driver set.

## Cache In

Now available from Ultrastor is the 12C ESDI controller with a 1MB on-board cache, expandable to 16MB using 1 or 4MB simons. This high performance adapter offers a direct upgrade path with any existing Ultrastor 12F ESDI control-

ler - no reformatting required.

## Big Announcements

Here are a few more major announcements of new product offerings: Microsoft Excel 3.0 - ANO's new 20MHz to 33MHz desktop - AST's Exec 5X/20 Portable in a 60MB version - Windows 1.0 (Windows based / sendFAX compatible) - Page-Maker 4.0 - Logitech's Mouseman available in a left- or right-handed version.

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## Reader Response Card



Contact: \_\_\_\_\_  
Position: \_\_\_\_\_  
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Please send me ANOVATION monthly.  
Please have an ANO Rep contact me.  
Please send me more information on:

Computer Training  
Zenith Products  
PC Tune Up  
Canon BJ-10c Printer

Laserwin 4.0  
HPC II  
AST Premium 386SX/16  
Other \_\_\_\_\_

Suggestions: \_\_\_\_\_

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